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Original Articles

THE FEDERAL CONTROL OF SERUMS, VACCINES, ETC.

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Some seven years ago Congress for the first time passed a bill,[1] the object of which was to control the purity and potency of certain remedial substances which enter into interstate traffic. This enactment, which is now a law of the land, provides for a complete system of governmental supervision over the establishments producing vaccines, viruses, serums, toxins, antitoxins and analogous products. This surveillance consists of (1) inspections; (2) licenses and (3) methods of control or check-testing in the Hygienic Laboratory, which serve to verify the care and efficiency with which the products in question are made and marketed.

The law requires that each package of virus, serum, toxin, antitoxin or other product be plainly marked with the proper name of the article contained therein; the name, address and license number of the manufacturer, and the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results.

The law further provides a penalty of $500 or imprisonment not exceeding one year in the discretion of the court for any violations of its provisions, and provides a still greater penalty in the power to suspend or revoke licenses for cause.

It must be clearly borne in mind that the federal supervision over the biologic products in question applies only to interstate traffic in said articles. Thus, vaccine virus prepared by the Massachusetts State Board of Health for sale, barter or exchange in Massachusetts does not come under the purview of the law, but this vaccine virus cannot cross the state border without an inspection, license and government control, as required by the law of July 1, 1902, above referred to.

THE NEED AND USES OF THE LAW

At the first inspection it was found that irresponsible persons were making and marketing biologic products without sufficient care or knowledge to insure safety and reliability. I was surprised to note the haphazard way, the antiquated methods and the lack of care with which some of the biologic products were produced before the government took a hand in these matters. Four such firms were at once refused licenses, and, not being able to produce a safe and reliable product in accordance with modern methods, they went out of business. Several applications from other persons or firms have since been refused licenses for similar reasons. Most of the remainder were required to remodel their establishments, change the personnel or improve their methods before being licensed to engage in interstate traffic.

Since the operation of the law a marked improvement has taken place in vaccine virus; standards for measuring the strength of diphtheria and tetanus antitoxins have been established; both the diphtheria and tetanus antitoxins found on the market have a decidedly increased potency; weak serums are forbidden;[2] contaminated or weak serums and vaccines which have been discovered have been promptly withdrawn from the market; false or misleading labels have been changed, and in general the licensed manufacturers have reached a high state of efficiency, and have spent much money to improve their personnel and property. The law has been enforced without fear or favor.

While the law has been a material help to the practitioner and his patient, it has also been of benefit to the manufacturers in pointing out defects, correcting faults, avoiding pitfalls, improving methods and inspiring confidence in their products.

THE INSPECTIONS

The inspections are made at least once a year, and oftener when necessary, by an officer of the Public Health and Marine-Hospital Service. These inspections are not perfunctory, but comprise a very searching inquiry into the methods of manufacture, the competency of those employed to carry on the work, and into the efficiency of the material equipment. Foreign establishments desiring to do business in the United States must submit to the same inspection, and are required to have licenses similar in all respects to those required of domestic establishments. To this some foreign establishments at first demurred, but when it was found that importations of their products without a license would be impossible they submitted to the law and its regulations.

At present every confidence may be had in all biologic products made under government license. These products are now carefully standardized whenever possible by uniform methods and are cautiously tested for impurities before being placed on the market.

THE LICENSE

The license is issued by the Secretary of the Treasury to the person or firm for a specific product. Each vaccine, serum, toxin and analogous product is considered separately; general licenses authorizing the manufacture of any and all biologic products are not issued.

The fact that a serum or vaccine is granted a license does not mean that it is a valuable curative or prophy-

1. An Act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes. Approved July 1, 1902.

2. Before the law went into effect tetanus antitoxin was quite feeble. Diphtheria antitoxin must now have at least 250 units per c.c.; no minimal number of units has yet been set for tetanus antitoxin.

lactic agent; in fact, it may have little or no therapeutic value. Thus, firms are licensed to sell normal horse serum or normal goat serum, provided they are honestly labeled and free from impurities. Further, antistreptococcic serum, antityphoid serum and other antiserums of weak and doubtful efficiency and substances in the experimental stage are sometimes licensed. The law provides for the license of biologic products "applicable to the prevention and cure of diseases of man."

It is evidently the province of the medical profession to determine for itself whether a certain substance has therapeutic value or not. The chief concern of the government is to protect the practitioner against sophistications, impurities, faults or mislabeling.

LABORATORY CONTROL

Samples are purchased on the open market by officers of the Public Health and Marine-Hospital Service in all parts of the country and sent to the Hygienic Laboratory in Washington for examination as to potency and purity. Inspectors also obtain samples directly from the manufacturer, which are similarly examined. These examinations are constantly in progress. If any fault is found with a sample the manufacturer is required by the Surgeon-General to withdraw all of that particular product from the market. Antidiphtheric serum, antitetanic serum and vaccine virus are examined for potency and purity; all other serums and vaccines for purity only. All serums are tested to determine whether they contain an excessive amount of preservative.[3]

These examinations require a certain amount of technical proficiency which has been developed as a specialty in the division of pathology and bacteriology of the Hygienic Laboratory. In these examinations special attention is given to Section 2 of the law, which provides "that no person shall falsely label or mark any package or container of any virus, serum, toxin, antitoxin or product aforesaid; nor alter any label or mark on any package or container of any virus, serum, toxin, antitoxin or product aforesaid so as to falsify such label or mark."

LICENSED MANUFACTURERS

During the past year fifteen establishments were reinspected and relicensed, and four additional establishments were inspected and licensed. A list showing the establishments which received licenses and the products for which licenses were granted appeared in THE JOURNAL of Sept. 18, 1909, p. 961.

GOVERNMENT GUARANTEE

The government does not guarantee that each vaccine point or each package of antitoxin will produce its full therapeutic effect and be free from all danger. This would be impracticable with the extent and variety of the business in biologic products now carried on in this country and abroad. It would be ideal if the government could guarantee the purity and potency of each package, but to do so would require more than supervision—it would almost mean government ownership.

Certain states and municipalities have found it convenient and economical to produce their own vaccine virus and diphtheria and tetanus antitoxins. The federal government has not gone farther than a legal surveillance, although it might some day be found desirable for the government to make these products for use in the medical services and territorial and insular possessions.

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3. Chloroform or tricresol (0.4 per cent.) are the preservatives commonly used.

VACCINE VIRUS

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Vaccine virus is the specific principle in the material obtained from the skin eruption of calves[1] having a disease known as vaccinia. The eruption begins as a papule, which develops into a vesicle, and later a pustule. For the purpose of propagating vaccine virus the material is usually taken from the vesicles when fully developed. This may be somewhere between the fifth and the eighth day after the animal has been vaccinated.

The material should be taken only from typical, unbroken vesicles, and is usually obtained by scraping with a curette. This material scraped from the skin eruption is called vaccine "pulp." The fluid which exudes after the pulp is taken is called vaccine "lymph." Both the pulp and the lymph are mixtures containing epithelial cells, serum, blood, leucocytes, products of inflammation, debris, bacteria, etc., in varying proportions.

The use of the pulp for the purpose of vaccination is of comparatively recent origin. Formerly the lymph was used extensively in a dried state on ivory points, constituting the so-called "dry points."

The specific principle of vaccinia is unknown. The organism, whatever it is, exists chiefly in the epidermal lesions, and the pulp, therefore, contains a more potent and concentrated virus than the lymph. Further, the pulp may be purified with glycerin or other substances, whereas the lymph dried on points is not amenable to such treatment. The pulp is mixed with glycerin in the proportion of about 50 to 60 per cent by weight. The glycerin acts as a preservative for the vaccine virus, but is an antiseptic for the frail non-spore-bearing bacteria. The germicidal action of the glycerin depends largely on the time and temperature at which the glycerinated pulp is kept. At ordinary temperatures the germicidal action of glycerin is feeble, and probably depends on its affinity for water.

Other antiseptic substances have been used for the purpose of purifying vaccine virus, viz., phenol (carbolic acid), potassium cyanid, chloroform, chlorbutanol (chloretone), etc., but with less success in practice.

It is evidently impossible to obtain vaccine virus free from the bacteria of the skin. Practically all the vaccine virus on the market contains a certain number of harmless bacteria, such as the hay bacillus, common molds and spores which exist everywhere and are exceedingly difficult to destroy. It is evidently impracticable to use strong antiseptic methods on the skin of the vaccinated animal, for such substances would destroy the viability of the vaccine virus itself. In the propagation of vaccine virus, therefore, cleanliness and asepsis are the watchwords.

The dry points usually contain a larger number of bacteria than the ripened[2] glycerinated virus and are, therefore, less desirable. The new federal regulations forbid interstate traffic in the old-style dry points after Jan. 1, 1910.

In imitation of the old-style dry point, which is a very convenient method of vaccination, manufacturers have placed a small drop of glycerinated virus on ivory or glass points hermetically sealed in paraffin or glass. These are safe and satisfactory. In some instances

1. For obvious reasons vaccine virus of direct human origin is now little used in the United States.

2. Glycerinated vaccine virus is said to be "green" before the glycerin has had a chance to be effective. At ice-box temperatures this usually takes thirty days; then the virus is said to be ripe.

gummy substances, such as serum, dextrose, etc., are used to encourage the adhesion of the virus to the point. The glycerin may first be largely extracted from the ripened glycerinated virus by pressing it between blotting papers.

All vaccine virus is tested according to modern bacteriologic methods for streptococci, tetanus spores and other virulent bacteria. These tests include animal inoculations. The tests made by the manufacturer must be satisfactory before the virus is placed on the market and permanent records are required of each lot. Special tests are made to determine the absence of foot-and-mouth or tetanus infection.

The calves are kept in quarantine under observation for seven days before being vaccinated. Only healthy calves free from diseases of the skin are used for this purpose. The calves are killed or otherwise rendered insensible to pain before the virus is removed. The practice of renting calves for the purpose of propagating vaccine virus is no longer countenanced by the federal regulations. The animals must be autopsied as soon as practicable after the removal of the virus in order to determine the presence of lesions indicating other infections than cowpox (vaccinia). The federal regulations further require that the vaccine virus taken from an animal showing indications of complicating infections must be destroyed.

All establishments manufacturing vaccine virus for use in interstate traffic are required to operate under government supervision, which has been described in my article on "The Federal Control of Serums, Vaccines, Etc." (see p. 249, this issue).

Reports received by the Surgeon-General from health officers and others all over the country indicate that since the operation of the law the vaccine virus has been much more satisfactory than before.

WHY VACCINE VIRUS SHOULD BE IN THE PHARMACOPEIA

Vaccine virus was the first and it is the oldest and best specific preventive known. It is a drug in the broadest sense of that term, and as such is handled by every pharmacist. One of the first advantages in admitting vaccine virus into the Pharmacopeia would be to establish for it an official and legal name. This would help avoid much confusion now existing on account of the bacterial vaccines and other substances called "vaccines" used in the prevention and cure of disease. For almost a hundred years vaccination was a specific term limited to the introduction of the virus of vaccinia into the skin for the prevention of smallpox. In recent years the term "vaccination" has been used in a generic sense to include the introduction of many different substances, in many different ways and for many different purposes. To establish a definite and accurate nomenclature is one of the important functions of the Pharmacopeia.

Furthermore, a certain amount of confusion would be avoided and increased definiteness would be given to the various forms in which vaccine virus is marketed by adopting such titles as "virus vaccinicum glycerinatum" and "virus vaccinicum siccum," etc.

To include vaccine virus in the Pharmacopeia would be one of the best means of calling the attention of all pharmacists to the fact that it must be kept in a cool, dry place, etc. Much of the vaccine virus on the market is inert because not properly handled in the trade. Hence, concise, authoritative directions in the Pharmacopeia would have an educational value and would help prevent smallpox and save life.

The objection that vaccine virus is an indefinite substance, the "active principle" of which is not known, is no longer valid, for the Pharmacopeia contains many such substances, including the ferments, against which similar objection holds.

The objection that vaccine virus can not be "assayed" by the average druggist also lacks force when we recall that the potency and purity of vaccine virus in interstate traffic is cared for by the federal government under the law of July 1, 1902, which relieves the pharmacist of this responsibility. Further, other substances, such as serum antidiphthericum, the testing of which requires special training and special laboratories, have been admitted into the Pharmacopeia.

The Pharmacopeia should briefly state the essential requirements of the law above mentioned concerning false labeling or marking of any package or container of vaccine virus; requiring further that each package of vaccine virus must be plainly marked with the proper name of the article, the name, address and license number of the manufacturer, and the date beyond which the contents can not be expected, beyond reasonable doubt, to give specific results. Such information in the hands of every druggist will serve an educational purpose and also help the federal authorities in the rigid enforcement of the law.

The Pharmacopeia should briefly state the method of preparing vaccine virus and specify the difference between glycerinated preparations and dry points and the other forms found on the market. As a precedent, it might be stated that the Belgian Pharmacopeia (third edition, 1906, page 194) has introduced vaccine virus under the title of "vaccinum," and the Swiss Pharmacopeia (fourth edition, 1907, page 512) has introduced vaccine virus as "vaccinum," synonyms: "Kuhpockenimpfstoff," "vaccine," "vaccin jennèrien," "vaccino jenneriano."

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ANTIDIPHTHERITIC SERUM AND ANTIDIPHTHERITIC GLOBULIN SOLUTIONS*

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Until recently the only means we had of giving diphtheria antitoxin was in the whole serum of the horse in which it had originated. The accumulated knowledge obtained in the investigations of a number of workers allowed the development of a practical method for eliminating a portion of the non-antitoxic serum substances while retaining the antitoxin. Because of this, besides the whole serum, we have at present on the American market two globulin preparations containing diphtheria antitoxin. As these are rapidly displacing the whole serum, I will give a brief description of them.

GLOBULIN PREPARATIONS

The Gibson process of purification and concentration is based on the fact that antitoxin is associated with the globulins soluble in saturated sodium chlorid solution. This purification appeared to be considerable, as

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

in the average normal horse serum the proteins are distributed as follows: albumin, 40 per cent.; globulin soluble in saturated sodium chlorid solution, 42 per cent.; globulin insoluble in saturated sodium chlorid solution, 18 per cent. Thus it would appear as though about 58 per cent. of non-antitoxic protein was eliminated.

Investigation carried on by Banzhaf and Gibson on the distribution of the proteins in immunized horses brought out the fact that, while the total proteins of the horses were increased during the progress of immunization, the so-called non-antitoxic proteins, the albumins and globulins insoluble in saturated sodium chlorid were greatly diminished. The globulins carrying the antitoxins were greatly increased. This work showed that in the average antitoxic horse serum the proteins were distributed as follows: albumin, 12 per cent.; globulin carrying the antitoxin, 78 per cent.; globulin insoluble in saturated sodium chlorid, 10 per cent. This brought out the fact that the Gibson process was eliminating in some preparations only about 22 per cent. of the total proteins.

About a year ago Banzhaf experimented with antitoxic serums heated at different temperatures and periods of time, and found changes taking place in the proteins which allowed further purification of antitoxin; thus, if antitoxic serums of 600 units per cubic centimeter containing albumin 12 per cent., globulin carrying the antitoxin 78 per cent., globulin non-antitoxic 10 per cent., were heated for from twelve to fifteen hours at a temperature of 57 C., a rearrangement of the proteins would take place, so that albumin would now be 9 per cent., globulin and all the antitoxin 50 per cent., and globulin non-antitoxic 41 per cent., showing an elimination of 50 per cent. non-antitoxic proteins. The loss of antitoxin on heating for this period of time and temperature is from 5 to 7 per cent. The units per gram of coagulable protein for this serum would be 9,446. With the Gibson process using the same serum, we have 11,456 units per gram protein, while with the heating method we have 17,060 units per gram.

For routine work at the Research Laboratories we do not try to concentrate more than to give an antitoxic potency of five or six times the original serum, as we do not want the total solids to be more than 16 to 18 per cent. The treatment of the antitoxic serum or of the globulin solution to fractional precipitation with different concentrations of ammonium sulphate allows of obtaining globulin preparations of somewhat greater degrees of antitoxic potency for each gram of protein. This method is often employed to obtain a fair preparation from a serum of low potency or, again, to obtain a very high potency serum.

The physician should keep in mind that the producer can concentrate the antitoxin either by eliminating the non-antitoxic proteids of the serum or by lessening the percentage of water holding the proteids in solution. The latter expedient, if carried too far, is a detriment.

ANTIDIPHTHERITIC HORSE SERUM

The blood serum from different horses varies not only in antitoxic potency, but also in its liability to produce disagreeable after-effects. Although theoretically it would be possible to test out the bleedings from each horse and to exclude that producing most serum effects, yet practically this would be so expensive as to be prohibitive.

It has been found that long standing and heating to 57 C. have some effect in lessening the after-effects. The improvement is so slight that most American producers have used unheated serum and have not stored their serum for this purpose.

With the present U. S. government insuring the unit strength and sterility of the serum, it is safe to say that the antidiphtheritic serum supplied by the different producers is practically identical, if of equal antitoxic strength. The elegance and convenience of the container is the main difference. The different lots of serum of the same manufacturer will vary in liability to produce rashes, and this, together with the idiosyncrasy of the patient, causes some physicians to approve and others to condemn the preparations of the same manufacturers.

COMPARISON OF GLOBULIN AND WHOLE SERUMS

The effects of the globulin preparations have to be considered from two standpoints: Have they the curative substances of the whole serum, and, if so, have they any advantages except in concentration over the whole serum? I have most carefully watched the results following the injection of the whole serum and of the Gibson and the Banzhaf modifications. These tests were carried out with preparations made from portions of the same lot of serum. The rashes and after-effects were undoubtedly much less after the Gibson injections than after the whole serum and somewhat less after the injections of the Banzhaf modification than after that of Gibson. Curiously enough, only certain types of rashes are eliminated. The urticarial reactions still frequently follow.

As is well known, certain French and Viennese investigators have asserted that the curative value of antidiphtheritic serum was only partly in the antitoxin, and even that the antitoxin was the least important part. These assertions were based partly on supposed clinical results, but chiefly on the results of animal experiments in which guinea-pigs with multiple fatal doses of living diphtheria bacilli were treated with serums of low and high potency. It appeared from their results that the amount of serum rather than of antitoxin units was of saving value.

These experiments were repeated by us in a very extensive series of tests and later there was a second independent test under Ehrlich's direction. The results were exactly the reverse of those earlier reported. The serums used in Vienna were fortunately obtained by Ehrlich, and he was astonished to find that they had been exceedingly inaccurately tested. When the serums were arranged as to their true unit value the results obtained by Krams were found to reverse what he supposed and really to strengthen the conclusion that the antitoxin was practically the only curative substance in serum. These results probably apply equally to tetanus antitoxin.

Professor Calmette, when over here last September, promised me to test a number of French serums as well as a number of American samples. He stated that if he found any that proved to have other important curative substances than antitoxin he would send them to me for control testing. He has not as yet sent any.

I am sure I am safe in asserting that so far as animal tests can be depended on (and I believe they can be) the globulin preparations contain all the important curative substances of the whole antidiphtheritic serum.

THE ACCURACY OF STATEMENT IN THE TRADE CIRCULARS

I have looked over the circulars accompanying the preparations sent out by different American producers. There are extremely few statements to which exception

can be taken. Two might be mentioned. One is that the globulin solution contains nothing but antitoxic globulins. We do not know what antitoxin is, but we believe that the globulin solution still contains much non-antitoxic substance, and we certainly hope to remove still more of the non-antitoxic globulins. The other is the claim that the special precipitating agent used gives a different final result. It seems to me that it is very creditable to the honesty and intelligence of the producers that they are so fair and sensible in their claims for their special preparations.

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THE COMMERCIAL PREPARATIONS OF TETANUS ANTITOXIN *

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Antitetanic serum is the serum of certain animals, usually that of horses, immunized to the toxins of the tetanus bacillus. It is marketed in both the liquid and dry forms. Some manufacturers prepare an antitetanic globulin; this contains a solution of the globulins of the blood, which are soluble in sodium chlorid solution, together with the antitoxin.

All tetanus antitoxin sold in interstate commerce in the United States must conform to the official standard adopted by the United States Public Health and Marine-Hospital Service, which was officially promulgated Oct. 25, 1907.[1] This unit may be defined as follows: "The immunity unit for measuring the strength of tetanus antitoxin shall be ten times the least quantity of antitetanic serum necessary to save the life of a 350-gram guinea-pig for ninety-six hours against the official test dose of a standard toxin furnished by the Hygienic Laboratory of the United States Public Health and Marine Hospital Service."

Besides the American unit above alluded to, there are three other units for measuring the strength of tetanus antitoxin. They are (1) the German method described by Behring (2), the French method of Roux, and (3) the Italian method after Tizzoni.

The European methods are admitted, even by their users, to be unsatisfactory and, in the main, not accurate; in addition, they are complicated and difficult to use. The American unit commends itself for its simplicity, directness, and accuracy. I am informed that it may be adopted officially by the Belgian government.

There is at the present time no standard for serums for veterinary use. We examined, in the Hygienic Laboratory, several different makes of veterinary tetanus antitoxin and found most of them to contain less than 25 units per cubic centimeter, while the minimum strength of the serums for human use now on the market—over which there is federal control—is at least 150 units per cubic centimeter, and much of it considerably stronger.

The need of uniformity in measuring the strength of tetanus antitoxin has long been felt and is very evident from the accompanying table,[2] from which it will be seen that before the promulgation of the American standard the tetanus antitoxin on the market varied extravagantly in the unit strength claimed.

As will be seen from the table, most of the foreign serums were far below the American in potency.

TABLE SHOWING THE DIFFERENCES IN THE METHODS OF TESTING TETANUS ANTITOXIN BEFORE THE ADOPTION OF THE AMERICAN UNIT

Name of Manufacturer.	Labeled.	Contents c.c.	Units claimed according to special methods of standardization, per c.c.	Units according to the American standard, per c.c.
New York department of health, Albany (submitted by Dr. H. D. Pease for comparison)	One immunizing dose (No. 2929 F.)	..	0.5	434
New York City department of health (submitted by Dr. W. H. Park for comparison)	.....	..	700	166
H. K. Mulford Co. (bought on open market)	1,000,000 immunizing units (No. 2121).	10	100,000	77
Farbenfabrik vorm. Meister Lucius & Bruning, Hoechst, a/M (submitted for comparative tests).	Tetanus Antitoxin, 5 fach. Normal, Prüfungs dose=1/500. *	.....	.....	333
H. K. Mulford Co. (No. 9971 submitted for tests).	60,000,000 units.	10	6,000,000	90
Parke, Davis & Co.	.....	..	60.000	700
New York department of health, Albany (submitted by Dr. H. D. Pease for comparison)	.....	..	.75	769
Pasteur Institute, Paris (10 c.c. fluid)	[Unit value not stated.]	10	Not stated.	40
Pasteur Institute, Paris	[Unit value not stated.]	10	Not stated.	40
Tizzoni (No. 2912, Dry)	[Unit value not stated.]	..	Not stated.	83.3†
Pasteur Institute (No. II, 7)	[Unit value not stated.]	10	Not stated.	66
Institut Bactériologique de Lyon et du Sud-Est	[Unit value not stated.]	10	Not stated	‡

* Dissolved in 26 c.c.
† This equals 833 units per gram of the dry serum.
‡ Less than 50.

Tetanus antitoxin is used both as a prophylactic and as a curative agent in tetanus. The dried and powdered serum has been used as a dusting-powder for wounds. Used as a prophylactic, the dose is 1,500 units; as a curative it should be given in doses of 3,000 to 20,000 units, repeated during the course of the illness.

Tetanus antitoxin is made in the following laboratories: Parke, Davis & Co., Detroit, Mich. (license No. 1); H. K. Mulford Co., Philadelphia, Pa. (license No. 2); Lederle Antitoxin Laboratories, New York, N. Y. (license No. 17); New York State Department of Health, Albany, N. Y., and the Department of Health, city of New York.

The liquid serum is marketed either in syringes ready for use or in glass vials. Each syringe of tetanus antitoxin made by the American producers contains from 1,500 to 5,000 units without regard to the volume of the serum; the unit value per cubic centimeter varies from 150 to 500 or 600 units.

Many of the foreign serums, as is the case with most of the foreign diphtheria antitoxins, are labeled to con-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Rosenau, M. J., and Anderson, John F.: The Standardization of Tetanus Antitoxin (an American Unit Established under Authority of the Act of July 1, 1902), Bull. 43, Hyg. Lab., U. S. P. H. and M.-H. S., Washington, 1908.

2. Bull. 43, Hyg. Lab., U. S. P. H. and M.-H. S., p. 11.

tain so many cubic centimeters and do not give the number of units in the package or per cubic centimeter, and are almost uniformly weaker in antitoxic strength than the serums produced in the United States.

The affinity of the nerves for the toxin and its subsequent binding by them explains why tetanus antitoxin is often of so little value after the symptoms have developed. The antitoxin can, however, neutralize any new toxin that may be formed in cases in which the focus has not been removed and should, for this reason, invariably be used in all cases of tetanus.

Tetanus antitoxin at the present time is in the Belgian, French, and Swiss pharmacopeias. Both the dry and the liquid preparations are recognized by the French Pharmacopeia.

As diphtheria antitoxin is in the United States Pharmacopeia, and as there is now an American standard for determining the strength of tetanus antitoxin, this product should by all means be included in the next revision of the United States Pharmacopeia. Its great value as a prophylactic alone entitles it to admission without regard to its value in the treatment of developed tetanus. I should like to see this Section pass a resolution favoring its admission to the Pharmacopeia.

It may not be amiss to add a few words in regard to the federal control of therapeutic serums, especially of tetanus antitoxin.

Before the adoption of the American unit for tetanus antitoxin by the United States Public Health and Marine-Hospital Service there were as many different units or standards as there were producers of tetanus antitoxin. The physician, in using this serum, could have no idea of the number of antitoxic units the serum contained, as one maker's product was labeled "to contain 6,000,000 units per c.c." and another, probably just as potent, 0.75 per c.c., when in truth, according to the official standard, the first had only 90 units per c.c. and the latter about 770 units per c.c..

The great good that has come from the federal control of therapeutic serums may be summarized as follows:

1. The physician can be assured that every package of tetanus antitoxin now contains at least the number of units claimed.

2. All serums are now examined for, and are required to be free from, bacterial or toxic contamination.

3. The amount of preservative contained in the serums is not excessive.

4. There has been a progressive increase in the potency of tetanus antitoxin without a corresponding increase in cost.

5. A uniform standard having been established, definite amounts of tetanus antitoxin can be used so that data will gradually be collected as to the amount of serum necessary to be used for immunizing and curative purposes.

ABSTRACT OF DISCUSSION

DR. W. H. HUTCHINGS, Detroit: I feel that the valuable work of Dr. Anderson and Dr. Rosenau in formulating this standard unit of tetanus antitoxin should not pass here without some commendation. We have now for the first time definite knowledge of how much antitoxin we are using. Previously we measured the amount given in cubic centimeters with no knowledge—except the word of the manufacturer—of how strong it really was. The value of such information will be appreciated when we see that the serum of one manufacturer, who claimed 6,000,000 units per c.c., contained according to the present standard, only 90; while another serum, which was stated to contain 0.75 of a unit, in reality, contained 769. As the result of the adoption of this standard we can now use the serum of any American manufacturer and know just how much we are giving. I would suggest that in future reports of our cases we state the number of units employed rather than the number of cubic centimeters. In this way we will soon have valuable data for comparison.

A large majority of manufacturers use either phenol or tricresol for preservation in various serums. The amount is usually 0.04 per cent. Consequently every time we give 10 c.c. of antitetanic serum we give at the same time a curative dose of phenol as recommended by Baccelli. Possibly some at least of the reported cures of developed tetanus are due more to the carbolic acid than to the serum.

DR. E. R. LARNED, Detroit: If Dr. Anderson said that the antitetanic unit represented ten times the amount of serum necessary to neutralize the killing dose of tetanus toxin when injected into a guinea-pig of standard weight, 350 drams, then I have misunderstood the technical definition of antitetanic unit and antidiphtheritic unit. My conception is that the antidiphtheric unit represents one hundred times the amount of serum necessary to save the life of a guinea-pig of standard weight (250 drams), when injected into the pig, together with minimum lethal dose of diphtheria toxin; that an antitetanic unit represents one thousand times the amount of serum required to save the life of a guinea-pig, of standard weight (350 drams), when injected at the same time with the M. L. D., of tetanus toxin. I understand that the government authorities have required that the standard dose of tetanus toxin to be administered to pigs in standardizing the serum into units is ten times the M. L. D., of toxin and that one hundred times the amount of serum necessary to neutralize the standard test dose of toxin (ten times the M. L. D.), of the same toxin represents the unit; or in other words, the antitetanic unit is one thousand times the amount of antitetanic serum required to save the life of a guinea-pig of standard weight (350 drams) when the serum and the toxin are injected at the same time.

One point that I think served to cloud the solution of the question of antitetanic serum's efficacy in the hands of the every-day practitioner, is the fact that the ordinary practicing physician knows nothing whatever about the necessity of the very early and frequent administration of sufficient quantities of the serum. My experience, which has been large in this particular regard, shows me that physicians are condemning antitetanic serum as a curative agent, because they wait too long, use too small quantities, and give up too quickly. A coal miner in Springfield, Ill., who had received an accidental gunshot wound, developed tetanus, his condition was pronounced hopeless and he was given up by the attending physician. Under the total administration of 198,000 units of serum, he recovered. The opinion in general seems to be that antitetanic serum is of no value for curative purposes. Professor Ehrlich has told me that antitetanic serum, in his opinion, was just as specific for tetanus as antidiphtheric serum for diphtheria, provided it was used early and often enough and in sufficiently large quantities.

DR. W. H. PARK, New York City: During the past few years, and especially the last year, we have found in New York that, when a large intravenous dose is given within a few hours of the onset of the symptoms, the effect is marked. More than 50 per cent. of the patients I have seen thus treated have recovered, some of whom I feel perfectly sure would have died without the serum. Ordinarily the surgeon waits a number of hours to make up his mind and then sends for the serum. He then frequently waits several hours longer until it arrives. At the first sign of actual tetanus an intravenous injection of ten to twenty thousand units should be given, to be followed every twelve hours by further injections. If this is done, we will certainly see some good results. The later injections can be given subcutaneously if there is difficulty in giving it intravenously.

DR. JOSEPH MCFARLAND, Philadelphia: How we are to arrive at the correct dosage of tetanus antitoxin I am unable to imagine. I would like to say a word about some observations made on tetanus in thirty-five horses. Sometimes a horse shows symptoms of tetanus, slowly increasing, and

after a prolonged period recovers without any treatment at all. At other times the horse develops symptoms, becomes rapidly worse, and dies in a few days. In the former cases recovery takes place without antitoxin treatment, in the latter, doses of antitoxic serum up to a liter at a time produce no improvement.

DR. W. H. HUTCHINGS, Detroit: In connection with a comparative experimental study of the various methods of treating tetanus, I have been conducting a series of experiments to determine the curative value of serum when used alone. For this purpose, I have used sheep with long tails. A splinter of wood infected with toxin-free spores was placed in a pocket at the tip of the tail. With the first appearance of symptoms of tetanus, six to seven days later, the tails were amputated 20 centimeters above the point of inoculation. At this time 2 c.c. of blood from the jugular vein of the infected sheep contained enough toxin to kill a 350 gram guinea-pig when injected subcutaneously. Then 4,500 units of antitetanic serum were injected intravenously as mentioned by Dr. Park. Twenty-four hours later, 2 c.c. of this sheep's blood did not contain a trace of toxin. Nevertheless, despite the daily injection of 4,500 units of serum all but one of the sheep died of tetanus. The symptoms were not influenced to the slightest degree by the serum. This experimental evidence goes to confirm the belief of many authors, based on clinical observations, that after the symptoms of tetanus have become manifest, antitetanic serum is valueless as a curative agent, no matter whether it is used subcutaneously, intravenously, intraspinally or intraneurally. Antitoxin will neutralize the toxin present in the body which has not combined with the nerve cells, but it will not break up this combination, the results of which kill most of our patients.

DR. J. F. ANDERSON, Washington, D. C.: The tetanus unit may be defined as ten times the least quantity of antitetanic serum necessary to protect the life of a 350 gram guinea-pig against the test dose of a standard toxin furnished by the Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

I think the pathology of the disease shows us how futile is the use of tetanus antitoxin after the symptoms have fully developed. The toxin, being bound by the nerve substance, cannot be reached by the antitoxin in the circulation, though the latter of course can neutralize any new toxin that may be formed if the original focus of infection has not been removed. I think it should be used, however, in all cases of developed tetanus, for frequently the surgical procedure has not been thorough.

I think Dr. Park's point that the serum should be administered intravenously is well taken and exceedingly important. We know that when a dose of antitoxin is given subcutaneously the maximum absorption is not attained till twenty-four to forty-eight hours after the injection, and much valuable time would be lost if the serum were not administered intravenously.

DR. JOSEPH MCFARLAND, Philadelphia: The large doses to which I referred were given subcutaneously, not intravenously.

VACCINE THERAPY: GENERAL PRINCIPLES *

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In studying the question of specific therapeutics it is important to bear in mind, in the first place, the fundamental distinction between passive and active immunity. In the utilization of passive immunity in the cure of disease, aid to the individual comes from without. Moreover, the mediation of a second animal is required, and the protection given is fleeting, though its immediate power may be great. By the inoculation of lower animals with animal or vegetable cells or their toxins, a large variety of immune serums has been produced. While most of these have been found to be highly potent in protection against infection, especially in animal experiment, their curative power in the presence of declared disease has been distinctly limited. Diphtheria still stands out as the one disease in which passive immunity has proved its worth emphatically, though results almost as remarkable have been seen recently in serum treatment of cerebrospinal meningitis. Less degrees of success have been noted in dysentery, cholera, typhoid fever, tetanus, snake-poisoning and other infections and intoxications.

In the use of vaccines, on the other hand, we aim at the production of an active immunity. We do not bring to the sick individual immune substances already manufactured; we endeavor to stimulate him to produce for himself a larger amount of these immune substances. To do this we introduce into his body more morbific material in order that he may, by manufacturing an increased amount of the protective bodies, inhibit the growth of the invading organisms and cut short his disease.

Success in this method of treatment presupposes that the patient is not already completely overwhelmed with poison. He must respond to the added stimulation. Furthermore, if this procedure is to bring about, as it should, increased bacterial destruction with the setting free thereby of an increased amount of endotoxin, this destruction must not be too rapid or excessive, lest efforts to cure do harm through hyperintoxication.

Bacterial immunity is brought about through the action of a great variety of different, though related, immune substances, and as a result of inoculation with vaccines there may be formed antitoxins, antiendotoxins, lysins, agglutinins, precipitins, opsonins, and other allied products, the relative importance and proportion of each varying in different infections.

By bacterial vaccine is generally meant a culture of the special organism sterilized by heat, or otherwise, and suspended in known proportions in normal salt solution.

Living organisms, attenuated either in number or virulence, have been used in a few instances. Theoretical considerations would indicate that the use of living bacteria would be followed by results more favorable than those seen after inoculation of the dead organisms, but it is manifest that such use would be in many instances accompanied by great danger. The greater efficiency of living organisms, however, should be constantly borne in mind, in order that, in the process of sterilization, the bacteria may be changed in their characteristics as little as possible.

In this connection may be mentioned the work of Strong, in the Philippines, who found that by the inoculation of plague bacilli of attenuated virulence, he could produce in human beings a much stronger immunity than that ever produced by dead bacilli. Furthermore, in one instance at least, living typhoid bacilli have been used by Italian observers in the treatment of typhoid fever, with what are said to have been excellent results. Finally, living bacilli have been used by Webb, Williams, and Barber[1] in the treatment of tuberculosis. In this treatment the bacilli are so diluted in number that inoculations are begun with a single bacillus, the dose being gradually increased thereafter.

As a general principle, it is better, if possible, to use autogenous vaccines. At any rate, if good results are

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Webb, Williams and Barber: Jour. Med. Research, January, 1909.

not obtained with stock vaccines, recourse to the autogenous variety should be had.

As to dosage, no definite rules can be laid down. It is advisable to begin well below what is considered the ordinary dose and gradually to increase. In this way, severe reactions due to individual idiosyncrasy will be avoided. The interval between doses also will vary in different infections. Generally speaking, at least two or three days should be allowed between inoculations.

As to the value of the opsonic index, as a guide to treatment with vaccines, the opinion gains ground steadily that this procedure is so time consuming and unreliable as not to justify its use, in routine practice at least.

TYPHOID BACILLUS

As a result of specific inoculation of large numbers of troops in the British Army, the results, as reported recently by Leishman,[2] show that of 5,473 soldiers inoculated, only 21 were subsequently infected, with 2 deaths, while of 6,610 non-inoculated in the same regiment 187 had typhoid and 26 died.

The experience of the Germans with antityphoid inoculation has not been so extensive, but in the main it confirms the results seen in England.[3] Of 424 typhoid patients, 324 had not been inoculated. In the uninoculated the mortality was 11.9 per cent.; in the inoculated, 4 per cent. In the inoculated the disease was milder and there were fewer complications and relapses.

As a result of these apparent successes with antityphoid inoculations, it has been proposed recently to introduce the same procedure into the army of the United States. Its use in civil life will not become general, doubtless, for a number of years. It is not unreasonable to suppose, however, that this inoculation should recommend itself in large institutions, especially where many of the personnel—physicians, nurses, ward tenders, laundry women, etc.—are not infrequently exposed to typhoid infection. Having demonstrated its usefulness in such situations, its introduction, generally, should be only a question of time, especially in communities threatened with or affected by typhoid epidemics.

In serum treatment of typhoid fever, no one has approached, in experience or success, Chantemesse[4] in Paris. With his colleagues he has treated 1,000 cases, with a death-rate of 4.3 per cent. Of 5,621 patients who were given routine treatment during the same period, 17 per cent. died. Of patients who were given serum treatment before the seventh day, Chantemesse lost not a single one. The nature of Chantemesse's serum is difficult to understand. He speaks of it as antitoxic and as produced by inoculation of horses with a true typhoid toxin. It does not, however, act directly on the toxin, as does the diphtheria antitoxin, but in some way indirectly. It stimulates the spleen, bone marrow and other lymphatic apparatus to increased opsonin production. The sicker the individual the smaller must be the dose, lest too many bacilli be destroyed at once. There would seem to be, therefore, a strong bactericidal element in the serum. The serum treatment is combined with the cold-bath treatment, and calcium chlorid is given as a routine measure to prevent hemorrhage. Chantemesse's results have been confirmed to a certain extent by the Germans, and von Leyden[5] reports three cases treated with an antitoxic serum prepared by Meyer and Bergell.[6] These cases were all of remarkably short duration, having normal temperatures on the sixteenth, seventeenth and nineteenth days. The serum is said to be of only moderate strength and to be both bacteriolytic and antitoxic. This serum, as produced by Meyer and Bergell, has been studied recently in animal experiment by W. Hoffman.[7] Hoffman's final conclusion was that the protective power of this serum was not sufficient to justify its use in human cases.

I have already published results seen in the treatment of 132 cases of typhoid fever with specific typhoid products, serum, bouillon filtrates, and the non-toxic residue of the typhoid bacillus, as prepared by Professor Vaughan of Ann Arbor.[8] The results were largely negative, with one exception. By continued inoculation during convalescence of the non-toxic residue, the occurrence of relapses was cut down apparently from 22 to 5 per cent.

More recently (1908) I have had experience with twenty-eight cases of typhoid fever treated with typhoid vaccines. Twenty-five of the patients were treated first in the original attack, and three for the first time during relapses. In two cases only were autogenous vaccines used. The dose varied from 10,000,000 to 100,000,000. The interval between doses averaged about three days. The results of the treatment were not especially striking.

As regards relapses, however, here again the effect of inoculation seemed to be favorable. In twenty-five cases inoculated, there was after inoculation but a single relapse. This was very atypical and lasted six days.

Of 77 untreated patients, 10 suffered typical relapses. I am, therefore, firmly convinced that whatever effect the vaccines may have on the original disease, there can be little doubt that the percentage of relapses can be much reduced by bacterial inoculation.

More recently series of cases of typhoid fever treated with vaccines have been reported by Watters and Eaton[9] (thirty cases) and Smallman[10] (thirty-six cases). These series, though small, tend to confirm the impression that vaccines are of value. At any rate, no harmful results were noted.

The possible use of vaccines in typhoid fever, for the cure of the typhoid-carrier has been suggested. Such a case is mentioned by Irwin and Houston.[11] In this patient bacilli were found in the urine seven years after the original disease. After three months' treatment with inoculation the bacilli disappeared and did not return.

MICROCOCCUS NEOFORMANS

The use of neoformans vaccines in the treatment of malignant tumors has been advocated, especially by Wright. It is said that not only do the tumors decrease temporarily at least in size, but that there is much alleviation of pain. As to the antiserum obtained by the inoculation of animals with this organism by Doyen, there seems to be no basis in fact for the claims made for this remedy. The subject was thoroughly investigated by Payne and Morgan.[12]

2. Leishman: Jour. Roy. Army Med. Corps, February, 1909.
3. Morgenroth: In Kolle and Wassermann's Handbuch der pathogenen Mikroorganismen, Supplementary volume, No. 1, p. 234.
4. Chantemesse: Hyg. gén. et appliq., 1907, p. 577.
5. Von Leyden: Med. Klin., Aug. 4, 1907.
6. Meyer and Bergell: Berl. klin. Wchnschr., May 6, 1907
7. Hoffman: Deutsch. med. Wchnschr., April 1, 1909.
8. Richardson, M. W.: Boston Med. and Surg. Jour., Oct. 3, 1907. This study was carried on at the Massachusetts General Hospital through the courtesy of the visiting physicians.
9. Watters and Eaton: Med. Rec., Jan. 16, 1909.
10. Smallman: Jour. Roy. Army Med. Corps, February, 1909.
11. Irwin and Houston: Lancet, London, Jan. 30, 1909.
12. Payne and Morgan: Med.-Chir. Tr., London, 1906, p. 7.

BACILLUS COLI COMMUNIS

There can be little doubt that infections of the urinary tract due to the colon bacillus are favorably affected by vaccine treatment. The subjective improvement is oftentimes striking, and pain and frequency of micturition are quickly relieved.

The character of the urine, however, changes but slowly and complete elimination of the bacteria is rare.

As to the use of these vaccines in other conditions, mention may be made of inoculation by Wright and Reed, in two cases, of gall-bladder fistulas after operation for gall-stones. Similar cases have been reported by Turton.[13] Turton mentions also two cases of appendicitis, in which pure cultures of colon bacillus were found, which seemed to do well under colon vaccines.

In all of these discussions of vaccine treatment it is, of course, important to bear in mind that a fever, clinically identical with what is known as typhoid fever, may be due either to the colon bacillus, as pointed out by Coleman and Hastings,[14] or to any of the intermediate organisms between the typhoid and the colon; that is to say, paratyphoid and paracolon varieties.

Any attempt at specific treatment of such intermediate types must, of course, be made with vaccines prepared from the appropriate germ.

The use of a specific antiserum in infection by the *Bacillus coli communis* is mentioned in an article by Makins.[15] This serum was of the polyvalent variety and was used in twenty-five cases of general peritonitis. Of the twenty-five patients nine, or 36 per cent., recovered. All the cases were of great severity. As a result of the use of the serum there was a drop in the pulse and temperature, the patient felt better, and there seemed to be a tendency to form peritoneal adhesions. In cases of chronic colon bacilluria the serum seemed to be of no value.

144 State House.

PRELIMINARY REPORT OF INVESTIGATIONS OF SERUMS AND VACCINES FOR STREPTOCOCCUS, STAPHYLOCOCCUS, AND PNEUMOCOCCUS INFECTIONS*

L. HEKTOEN, M.D., G. H. WEAVER, M.D.,
AND
R. TUNNICLIFF, M.D.
CHICAGO

At the request of the Chairman of the Section we undertook a study of the various antistreptococcus and antipneumococcus serums and of streptococcus, staphylococcus and pneumococcus vaccines found on the market, with the purpose of reporting our results in the symposium on the present status of serum and vaccine therapy. The labor involved in an attempt to arrive at some scientific estimate of the real value of these various agents has proved very great, and we are prepared to report our results in a preliminary way only, reserving a fuller report until some further investigations now in progress are completed.

BACTERIAL VACCINES

The antigenic properties of the so-called vaccines were tested by injections in rabbits with subsequent opsonin determinations. Distinct antigenic properties were possessed by all the streptococcus and staphylococcus vaccines tested. The pneumococcus vaccines were inert when injected into rabbits so far as indicated by any change in the opsonic index.

ANTISTREPTOCOCCUS SERUMS

Streptococcus opsonins could not be demonstrated in any of the serums tested, and activation by fresh serums was not accomplished to any significant degree. When they were injected into rabbits, increase in streptococcus opsonins could not be demonstrated in the serums of the animals in any notable degree, except in some instances.

Attempts to obtain protective and curative effects from the injection of antistreptococcus serums in rabbits, guinea-pigs and in a more limited scale in mice met failure. The serums often seemed to reduce the natural resistance and to hasten death.

ANTIPNEUMOCOCCUS SERUMS

In the antipneumococcus serums it was impossible to demonstrate antibodies for pneumococci by any method employed.

It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests.

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ABSTRACT OF DISCUSSION

DR. D. H. BERGEY, Philadelphia: The last statements in the paper interested me very much because they record results similar to those I obtained some years ago. That is, experimental animals to which the antistreptococcus serum has been administered die more quickly than those not so treated. I was unable to find any explanation at the time, though I suspected it might be due to the antiseptic. Can Dr. Weaver throw any light on this occurrence, that is as to its cause? Can it be due to the preservative used in the serum?

DR. W. H. PARK, New York City: I think that probably most of you have read of the use in Vienna of Moser's antistreptococcus serum in scarlet fever. From 10 to 200 c.c. of serum are injected in a single dose in children suffering from malignant scarlet fever. Two years ago I had the privilege of going over the records covering five years of treatment. In about one-half of these cases improvement rapidly followed the injections and in none was there apparently any harm except severe rashes. I have recently prepared a similar serum but have hesitated to use it in such large doses. In Vienna the serum is used in only about 5 per cent. of all cases.

DR. G. H. WEAVER, Chicago: In regard to animals to which the antistreptococcus serum has been administered dying more quickly than those not so treated, I do not think the preservative was the essential factor, for we had similar occurrences when the serums used contained no antiseptic. Of course, as Dr. Park has intimated, the serum of normal horses is toxic in different degrees for different animals and we know that horse serum is toxic to man to a comparatively slight degree, even when given in large quantities. Whether or not the antistreptococcus serum leads to the rapid disintegration of streptococci and the liberation of toxin, in overwhelming dose, especially in smaller animals, I do not think we are in a position to state.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the Memorial Institute for Infectious Diseases.

13. Turton: Internat. Clin., Philadelphia, 1908, series 2, xviii, 23-47.
14. Coleman and Hastings: Am. Jour. Med. Sc., February, 1909.
15. Makins: Tr. Clin. Soc., London, 1907, p. 146.

STATUS OF THERAPY BY ANTIGONOCOCCUS SERUM, GONOCOCCUS BACTERIN AND PYOCYANEUS BACTERIN *

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The question has arisen in the minds of many of the medical profession, not only throughout the United States, but abroad as well, first, whether or not immunization by bacterins (bacterial vaccines), including tuberculin and serums, is actually valuable and practical for the general practitioner, or whether this method of therapeusis is still a matter of empiricism; second, whether these therapeutic agents in the pharmaceutical market to-day are safe and trustworthy, or whether they are, like so many proprietary preparations of modern medicine, either wholly or partly inert, or, on the other hand, dangerously potent.

ANTIGONOCOCCUS SERUM AND GONOCOCCUS BACTERIN

As to the value of treatment of gonorrheal infections by one or both of these agents, depending on the particular affection in a given case, there can be no doubt. The experiences of Rogers and Torrey, Swinburne, Perez-Miro, Herbst, Dunavant and others demonstrate the value of antitoxic treatment by the employment of the serums of rams properly immunized. It would seem, however, that the method of passive immunization is beneficial more particularly in the chronic complications of gonorrhea involving the serous cavities, especially the joints, and my own experience, though not nearly so extensive, accords more closely with that of Uhle and Mackinney, who are unable to note any benefit in the treatment of acute gonorrheal infections by inoculation with antigonococcus serum. Questionable results have been obtained in certain subacute complications of the disease, but there has never occurred any noteworthy or definite improvement by recourse to this method of therapy in the chronic stages and sequels of gonorrhea involving the genito-urinary tract. Indisputable, however, seems to be the evidence that chronic gonorrheal arthritis is favorably influenced by serotherapy.

On the other hand, Wright, Pardoe, Douglass, Freeman, Wells, Fleming, Cole, Meakins, Irons, Hamilton and Cooke have apparently justified the belief that by active immunization (injection of bacterin or gonococcus vaccine) a much larger sphere of gonorrheal affections is afforded for treatment. I myself have observed almost incredible results in gonorrheal arthritis by bacterin therapy. Moreover, the usefulness of bacterins in acute conditions, even in blennorrhea, according to Cole and Meakins—although I have had no experience in this respect—gives it, in my opinion, superiority over serum as a therapeutic measure.

It is probable that, ultimately, various affections will demand different therapeutic agents for the facilitation of their respective cures; that is, diseases involving the mucous membrane may be influenced best by bacterin therapy, while complications affecting the serous membranes may respond more readily to serotherapy. Certainly, a certain amount of empiricism still shrouds the rationale of these two therapeutic agents, but their value in properly selected cases I think is undoubted. The golden rule should be never to undertake the treatment by immunization in any acute, diffused infection, associated with septicemia, sapremia or marked toxemia. Those conditions in which it is particularly indicated are the subacute and chronic localized superficial manifestations of the disease. Sufficient experience perhaps has not yet been adduced to prove which of the two measures is the more valuable, but, for the present at least, the consensus of opinion favors bacterin therapy.

A very important fact to be borne in mind in the practice of medicine is never to discard or to disregard an old-established measure of proved worth for an insufficiently tried, new idea, although attractive and possibly of equal value, for, by the association of the two, the cure will be facilitated. This is especially true not only in gonorrhea, but in every infection; hence, local urethral and prostatic and general treatment, when indicated, should be coupled with the method by immunization, and such treatment will never fail of its reward.

An essential point to be remembered in immunization, whether by bacterin or serum, is progression in dosage, beginning with minimum doses and steadily increasing until tolerance is established. Repeated small doses given at long, regular intervals, are likely to produce a condition of anaphylaxis and hypersusceptibility. Intolerance can also be produced by too frequent inoculations of too large doses. I believe this is the cause of many failures in active immunization or opsonotherapy. On the other hand, animal experimentation seems to prove that no real lasting immunity against subsequent infection can be expected from the inoculation of bacterin or serum, and that permanent immunization must be accomplished solely by living organisms.

Although, occasionally, in some cases, I still make it a practice to determine the opsonic index, not oftener than weekly, I am steadily becoming more convinced that it is unnecessary as a guide for the administration of opsonotherapy, and, in fact, not infrequently conducive to erroneous conclusions. Consequently, I am governed almost entirely by the clinical symptomatology in both bacterin and serum immunization. This is more easily stated than executed, and I believe no little experience is necessary for its proper performance. An almost uncontrollable desire to "push the immunization," carelessness and improper attention to trivial symptoms, as headache, malaise, indisposition, nausea, rise of temperature and local reactions, will invariably lead to utter failure. It is a serious question, therefore, in my mind whether or not the busy general practitioner will be able to use these methods of treatment to attain the highest success. Brilliant sporadic cases will be reported, but I do not believe that uniform and paramount success can be expected, and I fear that the harm which may ensue at the hands of too enthusiastic and careless physicians may offset the true virtue and value of the treatment in competent hands.

Relative to bacterin (vaccine) therapy, I am convinced by comparative experiences that by all odds the most successful results are to be obtained by the employment of autogenous bacterins. On the other hand, stock preparations should be used only when it is impossible or impractical to secure the autogenous agent. Naturally, gonorrheal and tuberculous affections are the particular conditions applicable for treatment by stock bacterins, on account not only of the difficulties of cultivation and length of time necessary for the maturity of the cultural growth, but also because in many instances of the impossibility of isolation of the particular bacterium. If the statement be true that the

* From the William Pepper Laboratory of Clinical Medicine, University of Pennsylvania.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

strains of the gonococcus are not so diversified as are those of many other organisms, we should expect comparatively more success from a stock bacterin than in some other infections. It is most important in all proposed treatments to determine definitely the specific infection, and always, when possible, to isolate and culture the particular bacteria and prepare and standardize the autogenous bacterin for administration. The grievous errors arising from guesswork and inoculation by false stock bacterins are obvious and assuredly unscientific. Such therapy is not deserving of success and serves merely to handicap a method of treatment that otherwise not only might be but is serviceable and efficacious. Therefore, it will be observed that opsonotherapy, as a rule, cannot be truly successfully carried out at home by the average practitioner of medicine not having a bacteriologic laboratory and the requisite bacteriologic knowledge.

In the majority of instances, few in number aside from gonorrheal and tuberculous affections, in which I have been obliged to employ stock bacterins, I have used preparations standardized in the William Pepper Clinical Laboratory of Medicine of the University of Pennsylvania. Otherwise I have administered the tuberculins, bacterins and serums placed before the profession by the firms of H. K. Mulford Company of Philadelphia, Parke, Davis and Company of Detroit and H. M. Alexander Company of Marietta, Pa. There may be products of equal virtue on the market by other firms, just as safe and trustworthy, but I have always found these preparations as represented and up to the standard in every respect.

A much-mooted question at present is relative to the length of time bacterins retain their potency. This has been stated to be from six months to a year or more. It is probably true that the efficiency of the preparation will persist for this length of time, but that does not imply, necessarily, that the full or original therapeutic power of the agent is maintained. My experience with the autogenous bacterins of the common pyogenic organisms has shown that the best results have been obtained when the bacterins were prepared anew every two to four weeks.

USELESSNESS OF THERAPY BY PYOCYANEUS BACTERIN

Relative to the bacterin (vaccine) therapy of pyocyaneus infections, I have simply to state that I have never experienced the slightest beneficial effect, either from the autogenous or stock bacterins prepared from the *Bacillus pyocyaneus*. I am unable to explain this fact save that it is usually an infection superimposed on a previous suppuration, and is independent of the particular bacterium causing the infection; that is, it acts as a scavenger of the primary infection or suppuration—a pus parasite, as it were. It would seem, therefore, illogical to expect that anything can be gained by stimulating the cells of the human organism to the production of antibodies, through inoculation, by the bacterin of an organism which in itself may be entirely dependent on the action and products of a pre-existing infection. Therefore, I strongly favor the discontinuance of the manufacture of pyocyaneus bacterins.

116 South Nineteenth Street.

ABSTRACT OF DISCUSSION

DR. SOLOMON SOLIS COHEN, Philadelphia: From a clinical standpoint I can corroborate what has been said of the value of the gonococcus bacterin in the treatment of gonorrheal arthritis. I have no experience with it in any other of the gonococcus infections. For some time, I have been using it in my wards at the Philadelphia Hospital and at the Jefferson Hospital in the treatment of the arthritic complications of gonorrhea, both late and early, and with good results. In the somewhat limited experience that we have had I have not been able to formulate any definite rule, except to be guided by the reaction of the patient. I am speaking now merely from a general recollection of a number of cases and cannot give those details which would be necessary for scientific critical analysis.

DR. F. M. POTTENGER, Los Angeles: I do not think that there is any warrant for speaking of opsonic therapy. There are many men to-day who do not consider what they are using, yet expect to get results, and are giving their opinions as to the value of vaccine treatment. Regarding the use of tuberculin, there is hardly a week that I do not receive a letter from some one stating that he desires to use tuberculin in a case, and asks: "What is the dose?" This kind of work will bring tuberculin into disrepute. I believe that vaccine therapy should be in the hands of men who will study its action, then something of value will be obtained. Otherwise, our literature will be filled with the opinions of those who have none to present. I have often thought that we have a good reason for autogenous vaccination, for instance in the tuberculous patient, who swallows perhaps a thousand times enough bacilli every day to infect him. His air passages are constantly filled with them, yet he often recovers. That seems to show that he produces more antibodies against his own bacilli, and justifies autogenous vaccination. But when we make an autogenous vaccine, grown on artificial media, we do not have the exact vaccine as we would were the culture grown from human tissue. I am a firm believer in the principles underlying bacteriotherapy. If we are careless, if we are overenthusiastic, if bacterial therapy is to be exploited by every one, I believe it will be discredited. I do not think the ordinary practitioner has any more right to use it than the surgeon would have to go blindfolded into the abdomen.

DR. B. FANTUS, Chicago: I would just like to bring up for discussion an idea that has been puzzling me; namely, whether the magic touch of the knife, the wonderful results obtained by opening the abscess, are not at least partly due to vaccination with autogenous vaccines.

DR. OSCAR BERGHAUSEN, Cincinnati: It seems to me that one very important point has been neglected this afternoon. I think we should use other measures in addition to the vaccines in order to increase their therapeutic effect. In some cases of acne, the use of a suction cup will secure a hyperemic condition, and more serum will be able to act locally. Likewise in gonorrheal rheumatism by employing congestion through the use of a bandage or hot-air, more serum is called to the part. In certain forms of infections, especially in streptococcus infections, the use of citric acid internally will render the blood more fluid. The use of other assisting measures should be favorably considered and should not be neglected.

DR. W. H. HUTCHINGS, Detroit: It is of the greatest importance that vaccine therapy should be in the hands of men who know how to use it. There is no doubt but that irreparable harm constantly is being done by men who have no conception of either the agent they are using or the theory on which its use is based. With the possible exception of staphylococcus and gonococcus vaccine, I do not believe that stock vaccines should be put in the hands of everybody who chooses to use them. As regards the value of the opsonic index, after an experience of four years, during which time I have treated hundreds of patients, both with and without the index, I have come to believe that it is of great value when properly done. The limit of error should be not over 15 per cent. This, however, can be secured only by devoting a great deal of time to it. The remarks made by Dr. Fantus in regard to abscesses and autointoxication are true. Unquestionably a process of autoinoculation is set up in those cases. Probably this is the way in which tuberculous peritonitis is cured by simply opening the abdomen and withdrawing the fluid. In fact, White of Dublin has shown that the tuberculo-opsonic index of the peritoneal fluid before operation was lower than that of the blood, while after operation the index, not only of the fluid which replaced that withdrawn, but of the blood also was much

higher than before. We do the same thing in operations for cervical tuberculous adenitis. An autoinoculation invariably results. I no longer do these extensive operations in this region, but limit myself to simple incision and drainage of the broken down glands, relying on tuberculin for the cure. So far, my results have been satisfactory. I have used a vaccine prepared from the *Micrococcus neoformans* of Doyen in four cases of inoperable carcinoma. In the first of these, a squamous-celled carcinoma of the right superior maxilla, the result was surprising. Pain and bleeding ceased almost immediately and did not return. The sloughing areas cleared up rapidly, leaving a clear carcinomatous area about one-half inch in depth. The general condition improved markedly. The disease, however, continued to extend and the patient eventually died. No effect was produced in the other three cases. I do not for a moment believe that we will cure cancer by bacterial vaccines, but I do believe that by using a vaccine prepared from the germs infecting inoperable cancers, we will relieve the patient of much suffering and prolong life.

GENERAL PRINCIPLES OF TUBERCULIN DIAGNOSIS AND TREATMENT*

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Tuberculin represents the toxin of the tubercle bacillus. It may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacillus itself. In the latter, or emulsified form, tuberculin is also known as tubercle vaccine. The different modifications and preparations of tuberculin are practically identical in their physiologic effects. They vary chiefly in a quantitative way and in absorbability. Whatever their mode of preparation, the greater the content of soluble substances of the tubercle bacillus in a given preparation, the more powerful it is in causing the characteristic reactions. The emulsions being more slowly absorbed, are less active in producing fever reactions.

Tuberculin is in nowise a serum. It is the diametric opposite of an antitoxin, and should not be confused with serums which purport to be antitoxins for tuberculosis, and which have thus far failed to merit the name.

DIAGNOSTIC USE

Tuberculin depends for its diagnostic value on a special sensitiveness acquired by the tissues after a tuberculous infection. This sensitiveness is manifested by an inflammatory response when tuberculin is brought in contact with the skin or mucous membrane. The response is more marked when it is injected into the body in sufficient quantity to reach the focus of disease. The cells composing the tubercle develop the most sensitiveness; hence the so-called focal reaction to incredibly small doses, where the tubercles are recent. As the walls of the tubercles become fibrous, as in the process of healing, the sensitiveness becomes gradually lessened, and with it the delicacy of the tuberculin reaction. Even after complete cicatrization, however, the reacting power persists both in the tubercle and integument practically throughout life (with few exceptions), though more time and a larger dose of tuberculin are required to elicit the response. Hence, the clinical value of a tuberculin reaction is usually proportionate to the smallness of the dose and quickness and degree of the response.

The more recent the infection, and the more extensive the disease, the more delicate is the reaction, unless the disease is rapidly progressing or grave constitutional weakness is present. In the last-mentioned cases tuberculin can serve no purpose in diagnosis or treatment. The reaction occurs with increasing frequency as age advances. A large percentage of apparently healthy adults react to tuberculin. The number of these varies from 15 to 50 per cent., depending on the dosage, method of applying the test, and individual factors of unknown origin. Repetition of the test in the same or increased dose is capable of arousing a latent sensitiveness from a former or healed infection. Hence, this method, especially when applied subcutaneously, is mainly useful in excluding active tuberculosis. From what has been stated, it must be comprehended that tuberculin tests, when resulting positively, confirm the presence of a past or recent infection, but do not necessarily establish the diagnosis of an existing disease; this must be done by other means. Therefore, the tuberculin test is of equal if not greater value in excluding tuberculosis when no reaction appears, and the interpretation of positive results must be made with care.

CHOICE OF METHODS

The original tuberculin of Koch is the most satisfactory preparation for diagnosis, but other filtered extracts are suitable. Those preparations which contain dead bacilli or their fragments should not be used; likewise the emulsions or vaccines, owing to uncertain and irregular absorption. There is no evidence that tuberculin made from bovine cultures can differentiate between human and bovine infections.

The Cutaneous Test.—As introduced by von Pirquet, this is the most suitable method for general use, and is absolutely harmless. It is the only test required for children, because a positive result is more significant of a recent infection and occurs less often in apparent health under the age of 12. Other methods may be needed in adults to confirm the result of a cutaneous test, but it can be applied as a preliminary method in all cases with advantage.

The Inunction of Tuberculin Ointment, According to Moro's Method.—This involves more trouble, and the tuberculin is less certain to be absorbed uniformly. Much as to the strength or weakness of the reaction depends on the rubbing. It is said to produce fever reactions in slight, healed infections, and is useful in infants where objection is made to scarification. There are no other advantages.

The Intradermic Injection of Small Doses.—This is a delicate but more difficult modification of the cutaneous test, and has no practical advantage over scarification.

The Conjunctival Test (Wolff-Eisner, Calmette.)—This is a simple and delicate method, but to be recommended only with reserve. The eyes should be free from any trace of disorder or history of past disease. Scrofulous persons, children under 15, and adults over 60 should never be tested in this way. The use of strong tuberculin solutions or repetition of the instillation in the same eye are dangerous. When weak solutions are used fewer apparently healthy persons react than with the cutaneous test. The statement that only those persons react who are clinically tuberculous or who are in danger of an outbreak from a latent disease (Wolff-Eisner) has not been substantiated. This test has its best field in confirmation of a positive result from a cutaneous test, and in cases in which the subcutaneous test would be inadvisable or inadmissible, as in febrile cases. If the subcutaneous test is contemplated the conjunctival test should be omitted, as a recurrence of the

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eye inflammation is probable. Applications of tuberculin to the nasal, urethral, or vaginal mucosa have no advantages for diagnosis.

The Subcutaneous Test.—This is the last resource, and the most searching method in tuberculin diagnosis. For this reason many regard it as the only satisfactory one, despite the chance of an unpleasant fever reaction. At present it may be regarded as unnecessary in most cases. In cases in which a focal reaction is desired, as in the diagnosis of superficial or surgical tuberculosis, or in which a negative result after a cutaneous test requires confirmation, it has great value. Since the focal reaction in the lung escapes notice in the majority of suspected pulmonary cases the subcutaneous test is of questionable value in confirming a positive cutaneous reaction. The dangers of this test have been considerably exaggerated, but in inexperienced or careless hands it is potent for harm. Certain contraindications and rules should always be observed, of which the following are to be mentioned as most important: First, the test should never be used when a satisfactory diagnosis can be made without it. Second, it should never be employed when a fever of 99.5 or over is present, or when the patient has a rapid pulse, gives a history of hemoptysis, or has already extensive signs in the chest. It should never be used in suspected Addison's disease. Third, the tuberculin should be fresh and the dosage accurate. Fourth, in the event of the slightest symptoms of reaction the subsequent dose should not be increased.

The interpretation of results in tuberculin diagnosis must take into account the size of the dose required to elicit the reaction, the promptness with which it develops, and the extent of the local and general reactions which accompany it. These factors, when considered in relation to the presence of symptoms of disease and according to the principles above set forth, must form the real basis for a correct differentiation between active tuberculosis and a latent or healed focus.

THERAPEUTIC USE

The therapeutic use of tuberculin may have two fairly definite objects in view: One is to diminish the sensitiveness to the toxin—i. e., to itself—the other is to create intermittent local reactions and thus to stimulate the disease focus to heal or become absorbed. The possibility of the production of a recognizable immunity to the disease thus far by any form of tuberculin treatment is open to question. A certain degree of resistance is indirectly accomplished when sensitiveness to tuberculin is decreased to a marked degree, accompanied by constitutional improvement. Such specific resistance as can be obtained by tuberculin is gradually lost after the treatment is discontinued, so that statements that patients can be made "immune" are unjustified. The degree of tolerance or immunity to tuberculin is proportionate to the dose that can be borne without reaction. Hence the progressive increase of dosage is essential to obtain that object. When only reactions about the focus of disease are desired the dosage need not be increased so long as sensitiveness persists to small doses. As soon as this is overcome the treatment should be interrupted until sensitiveness returns, or the doses must be increased to an unwise degree.

Indications and Contraindications.—Keeping in mind the objects above mentioned to be considered in selecting tuberculin treatment, it must be seen that only patients in a fairly quiescent state of the disease are likely to be benefited. Pulmonary patients should be in a good nutritive condition and free from persistent fever over 100, hemoptyses, night sweats, chronic diarrhea, or extensive laryngeal complications. The physical signs in the lungs should indicate a localized disease, free from large pneumonic consolidation or disseminated disease. Progressive tuberculosis of any form is a contraindication to this treatment. Tuberculin immunization is the only safe object to be held in view for the majority of pulmonary cases. Reactions are to be studiously avoided, and may involve danger when repeated, except in cases of well-arrested, localized disease. Slight unperceived focal reactions probably occur under any plan of tuberculin treatment and, when rightly timed, are beneficial. It is obvious, however, that focal reactions can be best observed and applied with safety in cases in which the focus is localized in the skin, bones, joints, or genitourinary tract, and in which the lungs are not involved. Suppurating sinuses from tuberculous lymph nodes are beneficially influenced, but it is irrational to expect good results in large, closed, caseated or suppurated foci of any kind without the cooperation of surgical measures.

The Choice of Tuberculin.—For therapeutic use the choice chiefly lies between the solutions and emulsions or vaccines. Opinions are too variant to permit the formulation of rules. In general the dosage is more controllable with solutions, and reactions are less frequent from emulsions. The emulsions have experimentally some immunizing power against the disease in animals and therefore it would be rational to expect them to be useful in man; but the amounts which can generally be given in safety are too small to produce immunity in man. Owing to the uncertain absorption of emulsions, reactions may ensue unexpectedly if the dose is increased greatly. The solutions are therefore safer for tuberculin immunization until some accurate standards for determining the proper dosage shall be made. The dosage is at present empirical; each individual case must be an experiment, and the symptoms carefully observed before each dose. The clinical oversight is the most satisfactory guide. The opsonic determinations are of apparent value in the hands of a few skilled and painstaking laboratory workers, but are for the majority wholly impracticable and inaccurate as a guide to dosage and as a measure of resistance.

The subcutaneous injection is the only satisfactory method for the administration of tuberculin. The use of tuberculin pills or capsules for stomach ingestion and suppositories per rectum are too uncertain of absorption to warrant any recommendation. Inunctions of tuberculin have a possible field in treatment of skin tuberculosis; otherwise they are also impracticable.

The technic of tuberculin injections, the guide to correct dosage and intervals, are details which vary with the preparation used and the experience of different observers. These details are not considered in this paper, the object of which is to state—even if too arbitrarily—certain general principles which in my opinion should guide and safeguard the use of tuberculin.

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ABSTRACT OF DISCUSSION

DR. FRANCIS M. POTTENGER, Los Angeles, Cal.: First I wish to speak of the opsonic index as a guide to the use of tuberculin. If one studies the neutrophiles in connection with their phagocytic powers, he finds that such power increases from Class 1 to Class 4 of Arneth. Hence, in a leucocytosis, which often shows a high percentage of Class 1, there would be relatively less phagocytosis, which seems to disprove Wright's early statement that the leucocyte is an indifferent factor in phagocytosis. In the hands of careful men the opsonic

index will, I think finally yield results. In tuberculin treatment we must bear in mind that we are dealing with an infectious disease, the cure for which depends on the establishment of complete immunity against the tubercle bacilli and its toxin. We must build up the patient so that his body cells will respond when stimulated. Next, we must see that our antibodies when present are applied. In small foci the small doses suggested by Wright are of value, but in advanced cases I believe that the larger doses are more effective, and with increasing dosage and constant stimulation the largest amount of antibodies are formed.

Careful consideration of clinical symptoms and close control of the patient, when using tuberculin, give the better results. I wish to see the patient on the day following as well as on the day on which the injection is made. To give the injections at set intervals is irrational. The time for injection depends on the size of the dose and the symptoms of the patient. The symptoms which guide me most often are unaccompanied by temperature rise. If the patient seems a little more nervous, if he aches, loses appetite, coughs and expectorates more than usual, I take it as a reaction. v. Pirquet's cutaneous test is very valuable, but requires considerable judgment. The symptomatology should aid you in deciding whether or not you are dealing with an active tuberculosis. If a closed case, you can inform your patient how to live.

DR. JOSEPH MCFARLAND, Philadelphia: Dr. Pottenger and I stand on opposite sides of this question. It is a matter of surprise to me that one so exact as Dr. Pottenger should be so extremely inaccurate in the matter of tuberculin. Personally, I am opposed to the use of tuberculin in the treatment of tuberculosis and I base that opposition on the fact that no animal can be immunized against tuberculosis by any previous treatment with tuberculin, nor can any animal already tuberculous have its life considerably lengthened by tuberculin. Therefore why we should infer that anything experimentally impossible in the lower animals should prove successful in human beings I cannot understand. We know tuberculin is injurious, it has its place in making the diagnosis of tuberculosis in cows, it is said to be harmless when used for that purpose, and in assisting in diagnosis in man, but beyond that I cannot see its usefulness. When Dr. Pottenger says that he has seen good results accrue from tuberculin that is entirely a matter of opinion, there is no measuring rod, there is no standard of comparison. Some time ago in discussing this matter with Dr. Flick I suggested that if the Phipps Institute could definitely establish some standard of comparison by which the different classes of cases could be investigated with reference to what they would do if they were treated dietically and climatologically without the use of medicaments of any kind, especially without the employment of tuberculin, it would be a most excellent work.

DR. THEODORE POTTER, Indianapolis: In reference to tuberculin, we connot insist too much, in connection with what is going on over the country, on the importance of clinical judgment. Unless we do there is going to be a vast amount of reckless sort of diagnosis. It is plain that a considerable percentage of apparently perfectly healthy people react to tuberculin, and that there are others who may have a little focus that has been encapsulated and they react easily, and unless we insist to the average doctor that the mere application of tuberculin will not furnish a basis for his clinical diagnosis of tuberculosis, we shall have a lot of trouble over the country.

The surface tests vary in their rapidity. The eye test shows up most quickly of all. That is, I believe, generally agreed to. It not infrequently begins to show in four to six hours and very frequently in eight to ten hours. There is in that fact sometimes an advantage; the time element in making a diagnosis is to the clinician sometimes important. For instance, some of you see cases from outside of the city. Patients come to the city in the morning and must go home in the evening, or they come in the evening and think they must go home tomorrow morning, and in certain instances it seems proper to use tuberculin diagnosis. That may be the factor in determining the use of the eye test. As to the manner of action of tuberculin, its beneficial action: I happen to be one of those who have used tuberculin for many years, almost ever since it came out. I never believed and do not now believe that the only value is in its immunizing effect Dr. Baldwin referred to its stimulating the formation of the fibroid tissue, and I always have and now hold that is one of the distinctly valuable effects of tuberculin, but I cannot prove it. I have met with a limited number of interesting examples of most remarkable improvement following the use of one or two large doses of tuberculin which I have never been able to explain. The article of Rotch of Boston, about a year ago in THE JOURNAL on the diagnosis by tuberculin, instances a case in which two children were given by mistake very large doses of tuberculin, in each instance developing a temperature of 106. One of these children promptly died probably, he thought, as the result of the injection. The other child promptly proceeded to get better very rapidly after that large dose. Now I have happened to have several instances of that kind. For instance, a man came to me last October, now some 18 or 20 months ago; he was then 37 years of age. I had not seen him for a year or two, I saw at once that he was not well. He gave the typical history of tuberculosis, fever, night sweats, loss of weight from 160 to 130 or 140, some 25 pounds loss. In spite of the most searching care I could not localize the lesion. I gave him 2 mgrms. of tuberculin with what I thought was a very moderate, but not very certain reaction. I then gave him an injection of 7 mgrms. of tested tuberculin, with a somewhat furious reaction, a temperature of 104 or more, and then there developed some slight focal symptoms, just recognizable, and that was all. I do not know where the real tuberculous focus was in that man. I recognized a little friction in one lung; he must have had tuberculosis somewhere else, probably in his bronchial glands. That man had been going for some three or four months down hill and without other treatment the man turned around and proceeded in a remarkable way to get well. He went along from the first of October until about the next April, when he showed some evidence of trouble and this performance was repeated. I gave him an injection of 4 mgrms. of tuberculin, just one, and he proceeded to get better and he is to-day apparently well. Now I have in the course of twelve or fifteen years happened to have had six or eight experiences of this sort in connection with the diagnostic use of tuberculin, all of course in early cases in which I could not be certain of the diagnosis from the ordinary physical method, and there occurred a pronounced reaction and forthwith there started a rather remarkable improvement. After fifteen years in the use of tuberculin to some moderate extent all the way along and more actively lately, I confess I do not know whether it is of much use or not.

THE TREATMENT OF INOPERABLE SARCOMA BY ERYSIPELAS AND PRODIGIOSUS TOXINS *

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The treatment of inoperable sarcoma by the toxins of certain bacteria is a treatment by vaccine. This vaccine differs, however, from certain other vaccines in not being a specific remedy, the toxins of the streptococci and of the *Bacillus prodigiosus* bearing no etiologic relation whatever to sarcoma, for the cure of which they are employed.

The foundation for this method of treatment of sarcoma is an empirical one. In a considerable number of cases in patients afflicted with cancer an attack of erysipelas led to a retrogression and in a certain number of cases to a total disappearance of the cancer, and especially of sarcoma. But certain other acute infectious diseases may likewise cause a retrogression of cancer.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Soon after the discovery of a streptococcus as the cause of erysipelas by Fehleisen[1] this investigator inoculated patients who suffered from cancer with the cultures of streptococcus of erysipelas; he was able to obtain some beneficial results. (His first report appeared in the year 1882.) Other surgeons likewise reported cures. In all of these cases, however, living bacteria were used, and it is not to be wondered at that in some instances such inoculations were followed by the death of the patient.

At that time it was already known that toxins are mainly responsible for the pathogenic action of microorganisms. It was a step in advance when in 1891 Lassar,[2] and soon afterward Spronck,[3] in Utrecht, recommended the use of the toxins of streptococci and of erysipelas instead of the living germs. In 1891 W. B. Coley of New York published some observations on the curative effect of the inoculation with the living streptococci of erysipelas in cases of sarcoma. In the following year he began a systematic study of the effect of the toxins of the streptococcus of erysipelas in the treatment of sarcoma. Since that time Dr. Coley has persistently continued in this line of therapeutical effort, and he has been able to collect very large series of cases treated by himself and by others with this method.[4]

He improved the method of treatment by adding the toxins of the *Bacillus prodigiosus* to those of the *Streptococcus erysipelatis*. He was led to this change by the observations of Roger,[5] who found that the toxins of the *Bacillus prodigiosus* increased, when injected into a rabbit, the virulence of living streptococci. In man, however, the cell contents of the *Bacillus prodigiosus* are toxic in themselves and the result of the injection of the combined toxins represents in all probability only the additive effect of both toxins. After various changes in the technic Dr. Coley found it best to use the non-filtered bouillon cultures of the streptococcus sterilized by heat, to which a certain amount of a culture of *Bacillus prodigiosus*, grown separately on agar and likewise sterilized by heat, had been added. The amount of endotoxin present in such preparations is greater than in filtered extracts. Later it was found that the *Streptococcus pyogenes* isolated from cases of septicemia was as effective as the streptococcus isolated from cases of erysipelas. It is even likely that toxins of other bacteria might serve a similar purpose; and Beebe and Tracy[6] found that the toxins of *Bacillus coli* had a similar effect on sarcoma of dogs. And, indeed, as early as in the year 1895 Répin[7] reported on the use of cobra venom for the same purpose.

The toxins are injected in gradually increasing doses, at first in a part of the body removed from the tumor, and later, if possible, directly into the tumor itself. The usual effect of bacterial toxins—rise in temperature, malaise, signs of local inflammation—follow the injection. In favorable cases Dr. Coley finds that the tumor shrinks and becomes softer within a week after the beginning of treatment. A tumor which does not respond to the treatment within four weeks is not likely to be favorably influenced at a later period.

1. Fehleisen: Deutsch. med. Wchnschr., 1882, viii.
2. Lassar: Deutsch. med. Wchnschr., 1891, No. 29.
3. Spronck: Ann. de l'Inst. Pasteur, 1892.
4. Coley, William B.: Am. Jour. Med. Sc., March, 1906; The Treatment of Sarcoma with the Mixed Toxins of Erysipelas and Bacillus Prodigiosus, Boston Med. and Surg. Jour., cxviii, No. 6; Sarcoma of the Long Bones, Ann. Surg., March, 1907.
5. Roger, G. H.: Les maladies infectieuses, Paris, 1902.
6. Beebe, S. P., and Tracy, Martha: The Treatment of Experimental Tumors with Bacterial Toxins, THE JOURNAL A. M. A., Nov. 2, 1907, No. 18, xlix, 1493.
7. Répin: Rev. de chir., 1895, xv.

According to Dr. Coley, the indications for the use of the toxins are the following:

1. All cases of inoperable sarcoma.

2. Certain cases of sarcoma of the long bones, still in the operable stage. In these the injection of the toxins may prevent the necessity of an amputation of the limb.

3. After operation for sarcoma, the injection being used as a routine treatment, in order to prevent recurrence of the tumor.

As to the actual results obtained with this treatment the following can be stated:

In tumors of dogs Spronck found in two cases no beneficial results; in five cases improvement followed the injection at a place distant from the tumor; the treatment, however, was not continued long enough to observe complete disappearance of the tumors. Spronck used spontaneous tumors. Beebe and Tracy observed a disappearance of the lymphosarcoma of dogs in a number of cases in which the toxins were injected into the tumor tissue itself. In one early case the tumor did not entirely disappear under the influence of the toxins and internal metastases were found at the post-mortem examination. It is to be emphasized, however, that these latter investigators did not use spontaneous but implanted dog tumors for their experiments, and it is certain that such inoculated tumors retrogress much more frequently spontaneously than primary tumors and are therefore probably more easily influenced by various therapeutic measures.

If we now consider the results obtained by this method of treatment in patients afflicted with sarcoma, Dr. Coley gives the following data: In 430 cases treated the tumor disappeared under the influence of the toxins in approximately 11 per cent. of the cases; 6.5 per cent. of the cases have remained without recurrence over three years after cessation of treatment. In 3 out of these 430 cases death followed, probably as a direct or indirect result of the treatment. According to Dr. Coley, in thirteen cases of sarcoma of long bones, observed partly by himself and partly by other surgeons, the use of the toxins has rendered amputation of the limb unnecessary; in other cases, however, the toxin treatment was without effect.

In a series of 22 cases in which the toxins were used after primary operation, 4 patients are now well after periods of three to eight years, and 9 after periods of one to three years; in 5 cases recurrence took place in spite of the toxin treatment; the remaining patients are still under treatment or the cases are very recent.

In order to supplement these statistics I have written to a number of prominent surgeons asking for a statement concerning their experience with Coley's fluid. Fourteen of these surgeons had had personal experience with this mode of treatment. The majority state, without giving the number of patients treated, that they have not seen any successful cases. From some surgeons I obtained the number of cases treated, and the result was as follows: Among 78 cases of sarcoma, in 4 cases a cure was obtained; therefore in not quite 5 per cent. of the cases treated a positive result was observed. On the other hand, in a number of cases in which no cure was obtained, the injection of the toxins seemed to have a marked weakening influence on the patient, and sometimes it produced a sloughing of the tumor.

It is therefore likely that the treatment of inoperable sarcoma with the toxins of streptococcus and *Bacillus prodigiosus* leads to a cure in approximately 4 to 9 per

cent. of cases. And some results obtained so far suggest that this method of treatment may prove of value as a postoperative procedure in diminishing the number of recurrences, and that in a certain number of cases it might limit the necessity for amputation of the limb in cases of sarcoma of the long bones. As to its mode of action, nothing definite can be stated, but it is likely that the toxins themselves, as well as the local and general reactions they produce, frequently affect the life of the sarcoma cells unfavorably.

ABSTRACT OF DISCUSSION

DR. B. A. THOMAS, Philadelphia: Dr. Loeb's paper has recalled to my mind a very interesting case which was brought to my attention a year since. The patient had been suffering for several weeks from an inoperable malignant tumor of the mouth and was being treated at the time by one of Philadelphia's most eminent internists, whose word I think would substantiate the diagnosis of a definite neoplasm. After several weeks of treatment the patient was told that nothing further could be done and was advised to arrange his estate. A few days later he was taken ill with a severe infection of grippe. He was confined to bed for several days. A few weeks after he recovered he called to see the physician again and was informed that, beyond a doubt, there had been a considerable decrease in the size of the tumor and there was evidence of healing. In the course of a few weeks the growth had entirely disappeared and the patient died subsequently of other intercurrent condition. It seems to me advisable to report this case, in the belief that toxins of bacteria or infections other than those caused by *Streptococcus* or *B. prodigiosus* may at times be instrumental in the cure or treatment of inoperable sarcoma.

DR. W. DUFFIELD ROBINSON, Philadelphia: I employed Coley's serum in a case of extraperitoneal sarcoma and had tried everything else I could think of and all had failed absolutely in doing anything, but the Coley serum had the most remarkable control of pain. The young man required 1 1/2 grains of morphin every hour or two; on the second day after beginning the treatment the morphin was reduced to 1/4, at the end of two weeks 1/12 grain three times a day. He was made much more comfortable and improved in many ways, but eventually died. Coley changed the serum at different times according to his ideas of the condition present. The entire treatment was under Coley's supervision. The other case was sarcoma of the neck and jaw. This patient was taken to the hospital and treated under Dr. Coley's supervision without result, except for controlling of pain. It failed entirely, although the serum was crowded to the maximum dose. Operation was done and the man has a recurrence now.

DR. O. P. JOHNSTONE, Pittsburg, Pa.: I have used Coley's fluid in two cases of sarcoma; one, a typical large spindle-celled sarcoma of the palate, had been operated on three times the previous year, with recurrences. After the third operation I recommended a trial of Coley's fluid, and it was given every day for three months. It is now a year since the last operation and there has been no recurrence. In the second case, a spindle-celled sarcoma of the skin, operated on a year ago, could not be completely removed, sections from the edge of the portion removed still showing tumor tissue. Coley's fluid was given daily for eight months, and twice a week for the following four months. The wound healed nicely, and the skin around the wound where the sarcoma tissue was left appears normal. The girl has increased in weight and appears perfectly well a year after the operation.

Plague Infected Wood Rat.—The discovery of a wood rat (*Neotoma Fuscipes anectens*, Elliot), from Alameda county, California, on Oct. 17, 1909, infected with bubonic plague, adds a new link to the chain of plague, as it is believed this is the first plague-infected wood rat ever discovered. The wood rat may act as an intermediary in the transmission of disease to other mammals. The infection was found by Passed Assistant Surgeon G. W. McCoy of the laboratory in San Francisco (*Public Health Reports*, Jan. 7, 1910).

ANTIVENINS*

HIDEYO NOGUCHI, M.D.
NEW YORK

In order to understand the proper administration of antivenins we must first consider several fundamental facts concerning the main properties of snake venoms and their antitoxins.

PROPERTIES OF VENOMS

1. *Constituents.*—There are three principal groups of death-dealing constituents in snake venoms, namely, the neurotoxins, hemorrhagins and fibrin ferments. In the venoms of colubrine snakes the neurotoxins are the most important constituents, while the hemorrhagins constitute the chief toxins of all the viperine venoms. The fibrin ferments are present in the colubrine as well as the viperine venoms and vary somewhat with the species. These three groups of toxins may in most venoms be present in varying quantities, but some venoms contain almost exclusively the neurotoxins, or neurotoxins and fibrin ferments with but little hemorrhagin. Thus the venoms of the Australian snakes—*Pseudechis* and *Notechis*—contain all three constituents in fairly even quantity, those of the marine snakes only the neurotoxins, those of the Indian and African colubrine snakes chiefly the neurotoxins with a negligible amount of hemorrhagins. The venoms of crotaline snakes, including the rattlesnakes and pit-vipers of America and Asia, contain chiefly hemorrhagins, with secondary amounts of the neurotoxins and fibrin-ferments. The real vipers owe their poisonousness to hemorrhagins, and sometimes to powerful fibrin ferments in their venoms. The most deadly of all the true vipers are the Indian *Daboia* and *Echis*. The *Elaps* of America has a venom rich in neurotoxins.

2. *The Causes of Death.*—Death from snake-poisoning is due to various causes, according to the varieties of venoms introduced. The death from the cobras, *Elaps*, *Bungarus* and marine snake-bite is due to the paralysis of respiratory center. The fatal issue from the poisoning by the daboia, *Echis*, and Australian snakes is due either to a rapid intravascular thrombosis or to secondary poisoning or infection resulting in marasmus. In cases of rattlesnake or any other crotaline snake-bite death is caused by occasional hemorrhages in vital organs or by a setting in of secondary poisoning resulting in cachexia or septicemia. In excessive absorption of these venoms death may result from the effects of neurotoxins also. The most distinctive of venom toxication in the crotaline bite is the extensive local disturbances produced by the hemorrhagins; this local effect is highly important in considering all the viperine and crotaline poisoning.

3. *Fatal Dosage.*—The minimal fatal doses of different venoms can be accurately determined by animal experimentation. But this is influenced by the mode of introduction of snake venom into the animal body. Thus in case of neurotoxic venom there is but little difference in the final result whether it is introduced directly into the circulation or under the skin. On the other hand, the minimal lethal dose of fibrin ferment containing venoms is very much smaller when injected into the circulation than when introduced subcutaneously, the greater part of the toxic ferment being absorbed in the neighborhood of the injection site. This is also true

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

of the hemorrhagin-containing venoms. The minimal fatal dose of crotalus venom, for example, is several times smaller when given intraperitoneally or intravenously.

4. *Hemolytic Properties.*—Hemolytic principles of venom play no important rôle in the fatal issue.

5. *Specificity of Toxins.*—Specificity of toxic constituents of venoms of various species of snakes is very important in considering the questions of antivenins. It has been established since the investigations of Mitchell and Reichert that different venoms are different in their pharmacologic and chemical properties.

VARIETIES AND PROPERTIES OF ANTIVENINS

But the knowledge of specificity has recently gone much further mainly through the aids of antivenins. The recent studies demonstrate that not only the venom as a whole, but also the apparently similar toxic constituents of different venoms, are not identical. Thus, the neurotoxins of the cobra are not the same as those of *Bungarus* or *Pseudechis*. The hemorrhagins of the rattlesnake is different from those of *Ancistrodon* or *Lachesis*. The fibrin ferment of the daboia venom is entirely different from that contained in other species of snakes. Hemolysins are also specific. This fact is extremely vital in employing antivenins as therapeutic agents.

6. *Varieties.*—There are seven different specific antivenins produced.

Cobra antivenin (Calmette, Lamb).
Crotalus antivenin (Flexner and Noguchi, McFarland).
Moccasin antivenin (Noguchi).
Lachesis antivenin (Brazil).
Crotalus terrificus antivenin (Brazil).
Trimeresurus antivenin (Kitashima, Ishizaka).
Daboia antivenin (Lamb).

Calmette's antivenin is produced by using several venoms and is a polyvalent one, although its action on other than cobra venom is rather feeble. McFarland's antivenin was also a polyvalent one, though not very strong.

7. *Specificity of Antivenins.*—Antivenins contain multiple antibodies or antitoxins corresponding to the number and varieties of toxic constituents contained in a given venom. There may be present antineurotoxins, antihemorrhagins, antifibrin ferments, antihemolysins, etc. But their action is highly specific—that is, the antineurotoxin of cobra antivenin cannot neutralize any other neurotoxins but the cobra neurotoxin. The antihemorrhagin of lachesis antivenin is effective only in neutralizing the corresponding hemorrhagin. The hemolysis or fibrin ferment of daboia venom are not affected by the antifibrin ferment or antihemolysin of other antivenins.

8. *Standardization of Antivenins.*—In the therapeutic application of antivenins their specificity must first be respected. The methods of standardization of antivenins are different according to different investigators. With cobra antivenins the only reliable method is to resort to animal experiments. Calmette chose the rabbit, giving the antivenin and venom simultaneously into the marginal vein. Myers preferred the mouse, giving a mixture of the venom and antivenin which had been left in contact for a few hours, administered intraperitoneally.

With crotalus antivenin Flexner and Noguchi and Madsen and Noguchi used intraperitoneal injection of the venom and antivenin mixture into guinea-pig and rabbit.

With daboia antivenin Lamb employed rabbits and monkeys. The daboia venom cannot be used or tested in the same manner as in cases of other antivenins, as it contains powerful fibrin ferments. The strength is estimated by using the mixture of the antivenin and venom *(in vitro)* or by observing the anticoagulating power on the citrated blood plasma *in vitro*.

With trimeresurus antivenin Kitashima employed several laboratory animals.

9. *Therapeutic Dosage of Antivenins.*—This depends on the quantity of venom that may be introduced by the bite. We require that quantity of antivenin which neutralizes a maximum quantity that a snake can inject. Three important snakes can yield at one time the following doses:

Naja tripudians (Cobra)	02 —0.35 gm.	(dried)
Crotalus adamanteus	0.2 —0.3 gm.	(dried)
Daboia	0.15—0.25 gm.	(dried)

The cobra antivenin prepared by Lamb requires 200 to 350 c.c., that of Calmette twice as much (Martin and Lamb).

The crotalus antivenin prepared by Flexner and Noguchi requires about 100 to 150 c.c.

The daboia antivenin prepared by Lamb requires about 150 to 250 c.c.

These quantities of antivenins appear enormous, but here come in some important factors to alter the matter. The resistance of man to these venoms, and the possibility of unfavorable conditions that may prevent snakes from injecting the maximum quantity of venom are the chief ones.

From animal experiments we can approximately estimate the minimal lethal dose of different venoms for man. Thus, according to several authors, one obtains the following data:

Cobra 0.015—0.0175 gm. (Lamb)
0.01 (Calmette).
0.031 (Frazer).
Daboia 0.06 (Lamb).
Crotalus 0.15—0.20 (Noguchi).

Under favorable conditions only the maximum quantity of venom may be injected by a snake, but this is not always the case. Especially the bite of *Crotalus* seldom destroys human life (Mitchell).

Supposing that a bite is inflicted by a cobra or any other venomous snake and the person receives a quantity of the venom little over the human tolerance. This excess may be so small that a few vials of antivenin may neutralize it and save the victim from death. This is very important in encouraging the use of antivenins whenever available. From animal experiments we know that the animals which survive acute poisoning with cobra or daboia recover rapidly without sequelæ. This is also true in human cases. The persons who escape death within the first few days usually recover soon.

Another factor is the favorable effect of a ligature in case of the daboia bite. The venom causes a quick intravenous thrombosis and prevents the absorption of the rest of the venom into the general circulation. Here we have ample chance to derive benefit from the administration of antivenin.

In crotalus poisoning death never occurs so rapidly and we also may expect much benefit from its antivenin.

All the antivenins should be administered intravenously or intramuscularly. In case of crotalus poisoning by *Crotalus* it is advisable to inject the antivenin both around the wound and intravenously.

In the future we must strive to produce much stronger preparations of antivenins than hitherto. At the Rockefeller Institute we now have several large animals under immunization with the venoms of the rattlesnake and water moccasin.

In closing I may add that in the southern isles of Japan the trimeresurus antivenin has been freely used and the statistics indicate a sudden fall of the mortality among the persons bitten by this formidable reptile.

The benefit of any antivenin is naturally greater when it is administered promptly, and none is to be injected unless the specificity is respected.

Rockefeller Institute for Scientific Research.

ABSTRACT OF DISCUSSION

DR. JOSEPH MCFARLAND, Philadelphia: Against how many fatal doses of crotalus poison has 1 c.c. of the anticrotalus serum been able to protect and what kind of serum was used?

DR. H. NOGUCHI: Twelve doses to 1 c.c. injected intraperitoneally; the serum was goat serum.

DR. MCFARLAND: Sheep serum is better.

DR. JOHN A. VAN VALZAH, Daytona Beach, Florida: But how soon would the poison act after the subject was bitten by a snake?

DR. NOGUCHI, New York: In a human case? Very little experience has been had. One of the assistants in the laboratory was bitten in the little finger. After about five or ten minutes he became nervous and the finger felt painful. Permanganate of potassium solution was injected freely, but the patient became depressed and the swelling went up his whole arm within twenty-four hours. Eventually he recovered. This was in the days before the antivenins were employed.

ANTIRABIC VIRUS

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Antirabic virus or vaccine, as used in the Pasteur treatment for the prevention of rabies or hydrophobia in exposed persons, consists of the spinal-cord material of rabbits which have died from rabies (or have been killed just before its termination), which has been induced by the subdural inoculation of the fixed virus of this disease. This fixed virus is obtained by the serial passage of the rabies as met in Nature (as, for instance, in mad dogs), through many successive rabbits. By this procedure it acquires finally a virulence which for any given strain of virus is fixed, and the incubation period of the disease caused by it in animals is uniform. At the same time its pathogenic properties have been modified so that it is less capable of causing rabies if inoculated subcutaneously.

In Pasteur's method of treatment, the spinal cord of the rabbit is dried for a time over caustic potash, at a temperature of 23 C., the result of this treatment being that the cord gradually loses its virulence, this so-called attenuation being probably a numerical decrease of infective units rather than a qualitative change. In inoculating persons who have been bitten by rabid animals those cords are administered first which have been dried so long that their infectious properties have become lost, and then on successive days cord is administered which has been dried for a shorter and shorter time, and which is consequently of increasing potency.

The virus or vaccine consists then of the spinal cord material of the rabbit, plus the micro-organism of rabies and its products, artificially modified as to its pathogenic properties.

It is administered subcutaneously, after being emulsified by rubbing up in a mortar, with a bland fluid such as physiologic salt solution or bouillon. The anterior abdominal wall is the most suitable site for inoculations. The treatment lasts from two to three weeks, according to the formula adopted by the institution providing the treatment, and is usually modified according to the severity and site of the injury. Injections are given daily.

The immunity thus induced is of the "active" type, the patient producing in his own body the "antibodies" necessary to prevent the pathogenic effect of the rabies virus with which the person has been accidentally inoculated. These antibodies are demonstrable in the blood of immunized persons or animals. This immunity is comparable, therefore, to that induced by smallpox vaccine against smallpox, and is entirely different from the passive immunity conferred against diphtheria, by the injection of antidiphtheritic serum. Reference to antirabic virus or vaccine as a "serum" is evidently incorrect.

It has been shown that this virus, like that of smallpox vaccine, is uninfluenced as to its potency for some time (at least three or four weeks) by immersion in neutral glycerin, or by the presence of small proportions of other antiseptics (tricresol, phenol). Advantage has been taken of this fact, and the virus may now be sent to distances from the laboratory where it is prepared, by conserving it in this manner, and be fully potent when used, provided that too long a time has not elapsed since its preparation and that it has been kept cool during transit. Deterioration is less rapid when the virus is preserved in bulk than when it has previously been emulsified.

Antirabic virus has no favorable influence on hydrophobia, once the disease has developed. Its beneficial effects are solely prophylactic and are rendered possible only by the fact that the average incubation period of rabies is relatively long.

Since the introduction of prophylactic inoculation by Pasteur many modifications in details have been introduced, the principle remaining the same. A detailed description of these modifications cannot be given here. What has been said applies to the most commonly used method of immunization with desiccated cord.

The treatment fails in cases in which the incubation period is too short to allow the necessary time for immunity to develop, in cases in which it is resorted to too late, and in those rare cases in which, from unexplained peculiarities of personal make-up, the individual is incapable of producing antibodies. These failures amount to less than 1 per cent., whereas in untreated persons who have been exposed the mortality has been variously estimated at from 5 per cent. to 20 per cent. or more. Variations in mortality statistics are due largely to the preponderance or small number of serious or belated cases in different regions. The bites of mad wolves, as in portions of Russia, give a mortality in untreated persons which often reaches 50 or 80 per cent., because the injuries are very severe and likely to be about the head and neck.

Pasteur treatment is now available at some twenty or more institutions in the United States,[1] and may be obtained from the Surgeon-General, United States Public Health and Marine-Hospital Service, on application by health officers having moderate laboratory facilities for administration under their supervision.

1. For a list of these see the publication The Prevalence of Rabies in the United States, by the United States Public Health and Marine-Hospital Service. Washington, 1909; also THE JOURNAL A. M. A., Sept. 25, 1909, liii, 989.

ANIMAL EXPERIMENTATION AND CANCER*

JAMES EWING, M.D.

NEW YORK

"The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals."—*Charles W. Eliot.*

Contrary to current ideas, cancer seems to be as widespread as are animal species. Although numerically more common in man, the statistics of Fröhner,[1] Sticker[2] and Semmer[3] show that from 5 to 8 per cent. of sick dogs suffer from cancer; that the mortality from tumors among pet dogs is surprisingly high; and that it is probable that the later periods of canine existence are even more afflicted than are similar periods of human life. In horses, swine and cattle, tumors are much less frequent, but particular forms of cancer, as melanoma in the horse and cancer of the eyelid in cattle, are relatively common. In birds lymphoma is a common and fatal form of malignant tumor, while some varieties of cancer have been recorded in nearly every organ of the body. In mice and rats the recent search for tumors for experimental study has revealed the rather frequent occurrence of tumors of the breast and other organs, as well as many cases of multiple tumors of various sorts in the same animal.

Passing from domesticated to wild animals, there appears to be a sharp fall in the incidence of cancer. Yet this gradation is sharply interrupted by an epidemic disease, probably cancer, occurring in artificially bred trout. In the Auckland Society Trout Hatchery, Bonnett[4] reports the occurrence of as many as 3,000 cases in four months. In pelagic fish the observations collected by the Imperial Cancer Research Commission show that cancers are not wanting in fish living under natural conditions, while bony tumors in certain fish are so common that W. Bell[5] once supposed that such conditions were constant and normal.

Descending even to the reptiles and amphibians, we find cases of cancer of the testis in the giant salamander recorded by Pick and Poll,[6] thyroid adenoma in the tortoise, cancer of the kidney and other growths in frogs (Bashford[7]), and many tumors in salamanders and lizards (Plehne[8]). Thus the study of cancer has a universal biologic interest. No other disease presents an equal scope, and the dignity of cancer research appears in its true form when one considers that its results apply for all time to all orders of living animals, possibly even to plants.

The frequency of most diseases varies in different periods of their history. Smallpox, once an ever-present scourge, is now comparatively rare. Tuberculosis, always abundant, has steadily been reduced in frequency. The declining incidence of these diseases is an important factor in judging of their hygienic significance. If cancer is steadily declining in frequency, or likely to do so, its importance as a human problem diminishes.

The weight of evidence to-day points almost conclusively to the opinion that cancer is steadily increasing in frequency in man and domestic animals and that this increase is likely to become more pronounced. Yet the most diverse opinions exist regarding the alleged increase in cancer, emanating from the varying character of the evidence assumed by different authorities as valid. Surgeons are practically unanimous in the belief that cancer has been steadily growing in frequency during the last quarter-century and has been appearing at earlier periods of life. Yet such testimony must be regarded as somewhat uncertain and unconvincing. Riechelmann[9] has shown that in the Berlin hospitals 20 per cent. of the cases of cancer demonstrated at autopsy were not recognized during life, and, since the diagnostic skill of Berlin physicians is probably above the average, there is still room for a 20 per cent. increase in the cases of recognized cancer from improved diagnosis alone. Cancer is a disease chiefly of the third to fifth decades of life, and it is, therefore, obvious that the improved hygiene of youth permits an increasing proportion of persons to live to adult life and thus reach the cancer zone.

These facts should be borne in mind in reviewing the statistics drawn by Williams[10] from the Report of the Registrar General of England.

CANCER IN ENGLAND AND WALES

Year.	Total deaths.	Cancer deaths.	Proportion to population.	Proportion to total deaths.
1840	359,687	2,786	1-5,646	1-129
1850	368,995	4,966	1-3,579	1- 74
1860	422,721	6,827	1-2,915	1- 62
1870	515,329	9,530	1-2,361	1- 54
1880	528,642	13,210	1-1,946	1- 40
1890	562,248	19,433	1-1,480	1- 28
1900	587,830	26,731	1-1,207	1- 22
1902	535,538	27,872	1-1,183	1- 19
1904	549,784	29,682	1-1,138	1- 18
1905	520,031	30,221	1-1,131	1- 17

Thus from 1840 to 1905 the cancer deaths in England and Wales rose from 1 in 129 deaths from all causes to 1 in 17. In the registration area of the United States very similar figures are obtained, the cancer deaths rising from 63 per 100,000 living in 1900 to 72 per 100,000 living in 1906. The frequency of the disease may be better appreciated from the computation that in England of those living at the age of 35 years one man in eleven and one woman in eight dies of cancer. Future ratios we are perhaps not warranted in forecasting. In England cancer is already a more fatal disease for women than is consumption.

Are there any general hygienic factors in sight which may limit the cancer death-rate? On the contrary, statistics show that sanitary measures, which control the infectious diseases, exercise no such power over cancer, which is somewhat conspicuous by a relative failure to attack the poor, the overworked, the underfed, and the savage, but chooses a notable proportion of its victims among the well-to-do, the well-nourished, the well-protected against infectious diseases, and the indolent. Cancer is a growing penalty on a one-sided civilization. It has as yet no place in sanitary science. The most conservative estimate must, therefore, admit that the situation in regard to cancer is ominous. This disease is the greatest of all physical evils in the higher animal king-

* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Eight of these pamphlets are now ready or on the press, taking up the questions of ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, rabies, typhoid, etc. An editorial survey of the series appeared in THE JOURNAL January 1 and a list of the pamphlets, with prices, was given on advertising page 8 of that issue.

1. Fröhner: Statistische und casinstische Mittheilungen über die Vorkommen und die chirurgische Behandlungen der Geschwülste beim Hunde, Monatsh. f. prakt. Thierh., 1894, vi, 79, 111.
2. Sticker: Arch. f. klin. Chir., 1902, lxv, 616.
3. Semmer: Lehrbuch der allgemeinen Chirurgie und Operationslehre (Möller), 1893.
4. Bonnett, cited by Pick: Berl klin Wchnschr., 1905, xlii, 1435.
5. Bell, cited by Williams: Natural History of Cancer, Scientific Reports, Imperial Cancer Research Fund, 1904, i, 7.
6. Pick and Poll: Berl. klin. Wchnschr., 1903, pp. 518, 546, 572.
7. Bashford: Scientific Reports, Imperial Cancer Research Fund 1904, i.
8. Plehne: Ztschr. f. Krebsforsch., 1906, iv, 525.
9. Riechelmann: Berl. klin. Wchnschr., 1902, xxxix, 728, 758.
10. Williams: The Natural History of Cancer, New York, Wm. Wood & Co., 1908.

dom and its unhindered ravages constitute a stigma on human intelligence which is not the less genuine because cancer is the most obscure and comprehensive problem of biology.

Thoughtful persons may well ask what science has done and what it is proposing to do for cancer.

In the first place, science—and exclusively medical science—has written the natural history of cancer. How it was accomplished has been told by Wolff[11] in a volume of 750 pages in which the labyrinth of detail, depicting the varying conflict of truth and error, does not obscure the magnitude of the task, the volume of labor expended, or the fascination of the narrative, which covers 2,000 years of human history. In this story, one is impressed by the fact that cancer research has been strictly limited by the progress of collateral sciences, and that the real progress of our knowledge has been contributed by relatively few men whose work was wholly beyond the reach of the public ken and whose results were depreciated or ignored by a considerable portion of the medical profession of their day.

The natural history of cancer has been very fully written, and to the surgeon belongs the credit of making practical use of this knowledge. The wisdom of an early recognition and complete removal of cancer by the knife is a lesson that has been thoroughly learned. Yet cancer is on the increase, and it must be seriously doubted if the earlier recognition of the disease and more effective removal will ever succeed in greatly reducing the mortality from its present figures. From the operating surgeon the cancer patient can hope only for an earlier resort and more frequent submission to the knife, and it is doubtful if this prospect has been any more abhorrent to the patient than to the surgeon.

Cancer research also up to 1900 has offered little encouragement to the victim of the disease. The systematic study of the cancer process, having vainly exhausted its energy in the parasitic theory, had fallen into a state of hopeless inertia. Medical science had branded this field as fruitless. Laboratory workers who were looking for results turned with dismay from the uninviting prospect. But in 1902 cancer research sprang into intense activity. New ideas riveted the attention of laboratory workers on this subject. Local, national and international societies were formed for the study of cancer along new lines. Broadly organized institutions supported by enlightened governments, universities, and men of means, were established in England and Germany for the systematic pursuit of the new themes. Medical literature abounded with contributions in the new field, and two new journals were shortly established, devoted exclusively to this work. The change has been almost instantaneous and constitutes nothing short of a revolution.

What influence has been capable of bringing about such a change? It was the introduction of animal experimentation into the study of cancer.

The idea of transplanting cancer from one animal to another was not new. Peyrilhe[12] tried it about 1780, when France was not ready for such work. Surgeons had long recognized that they never contracted cancer during operations in such cases, and Alibert[13] found that he could not inoculate himself or his assistants with the disease. Scores of observers had wholly failed in many attempts to transfer the disease from one animal to another, so that it was generally accepted that cancer was not inoculable. Yet in 1889 Hanau's[14] report of the successful transfer of an epithelioma from one rat to another excited much passing interest in Germany. In the same year, in France, Moreau[15] had very definite success in eight out of ten mice inoculated with a carcinoma of a mouse, and by 1894 he had carried this tumor through seventeen generations, making the first experimental observations on the influence of gestation and heredity on tumor growth. It was not until 1901 and 1902, when Loeb[16] in America and Jensen[17] in Denmark reported their systematic studies of transplanted cancers in rats and mice, that the great importance of this work became recognized. It was now seen that it was possible by animal experimentation to study the growth of tumors under the exact conditions of a laboratory experiment. The same methods which had proved successful with smallpox, cholera, diphtheria and tuberculosis were now made available for cancer research.

Accordingly the experimental study of cancer has been taken up energetically in England, Germany, France, Austria, Japan and America, with the result that in five years new facts of first importance have been demonstrated and the entirely new field of cancer immunity has been thrown open. It is too early to place a final estimate on the true value of many of these facts, but present indications point out some of the results as most significant and as revealing the revolutionary influence of the experimental study of cancer.

1. In 1862 Virchow[18] stated that no human being could define, even under torture, exactly what a tumor was. To-day we know, at least for cancer, that the final criterion is the capacity of a tumor cell to maintain an independent existence when transplanted into an animal of the same species, and this test has been successfully employed in several doubtful cases.

2. A sensational feature of the recent studies is the demonstration that cancer cells may apparently grow forever, if suitable environment be provided. The Jensen strain of mouse tumor has been transplanted through several hundred generations over a period of seven years and still shows undiminished vitality. There is good reason to believe that a certain sarcoma of dogs readily transmitted by coitus has acquired its very great infectivity by repeated natural transfers in this manner and thus constitutes a wholly new form of parasitism.

3. It has been shown that the conditions under which transplanted tumor cells will grow are extremely narrow, vastly more so than those governing the growth of bacteria. Haaland's cancer grew well in Berlin mice fed on milk, but when an attempt was made to transplant this tumor into Copenhagen mice of exactly the same species, but fed on carbohydrates, great difficulty was encountered. The slight difference in the diet sufficed to render the soil refractory. Such a result encourages the hope that it may prove possible to influence the growth of established tumors by practical therapeutic measures, although previously there seemed to be no ground for such a hope.

4. The question of the spontaneous cure of malignant tumors had long been debated and remained uncertain until such spontaneous regression had been repeatedly observed in transplanted tumors of mice, rats and dogs. This observation was so contrary to the well-established

11. Wolff: Die Lehre von der Krebskrankheit, Jena, 1907.
12. Peyrilhe, cited by Wolff: Die Lehre von der Krebskrankheit, p. 65.
13. Alibert, cited by Pianese: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1896, Suppl. I.
14. Hanau: Arch. f. klin. Chir., 1889, xxxix, 678.
15. Moreau: Arch. de. méd. expér. et d'anat. path., 1894, vi, 677.
16. Loeb: Jour. Med. Research, 1901, vi, 28.
17. Jensen: Centralbl. f. Bacteriol. u. Parasitenk., 1903, xxxiv, 122.
18. Virchow: Die krankhaften Geschwülste, 1863, i, 3.

belief that malignant tumors never spontaneously regress that its occurrence in lower animals was at first vigorously denied, and only repeated demonstration compelled its final acceptance.

5. Most significant is the discovery that there is such a condition as immunity to cancer. Most animals that have recovered from tumors either spontaneously or after incomplete operation are thereafter immune to cancer. Not only may this immunity be established after spontaneous cure, but it has been artificially induced by inoculation with extracts of normal mouse organs and embryos. It is hardly possible to overestimate the importance of this discovery, since it at once takes cancer from a realm of baffling obscurity and places it in much the same position as the infectious diseases. The nature of this immunity is very complex. New methods must be devised for its study, but the possibility of perfecting these methods exists and solely as the result of animal experimentation.

6. After repeated transplantation cancers have been found to increase in rapidity of growth and in the capacity to survive transplantation; i. e., they acquire increased virulence. This wholly unexpected result, which might appear to be of no practical significance, has been used to produce artificial immunization, for by vaccinating an animal with a feeble strain of tumor from which it recovers, the animal becomes immune to the most malignant cancers. The principle of a preventive treatment of cancer has thus been disclosed.

7. Medical science has spent many years and much labor in the vain effort to discover a parasite of cancer. Even recently it has been feared that cancer patients were a menace to their neighbors, and that the houses of cancer victims should be burned. But the experimental study of tumors has greatly strengthened the view that cancer is not a contagious disease, that its exciting cause cannot be a readily transmissible parasite, and that the long-looked-for cancer parasite is the cancer cell. The field of research has, therefore, been narrowly defined, and it is not likely that the enthusiastic search for a specific cancer parasite will soon again assume the dominant position it once occupied.

8. The relation of heredity to malignant tumors has formed a vital chapter in cancer research, but based on the uncertain observations of family histories the most divergent views on this subject are extant, and exact knowledge about the nature of any hereditary influence in tumor growth is lacking. Are the offspring of two cancerous parents especially liable to develop the disease, and, if so, to what extent, and what course will the disease take? No one knows. Yet the early observations of Moreau bore directly on this subject, and in the short-lived mouse it is possible to devise experiments of reasonable time-span which will definitely settle some of these questions. In several laboratories such experiments are already well advanced, with preliminary results of great interest and importance.

9. The rational cure of established cancer in man remains a problem for the future. Mice have been cured by serum therapy, and in nine consecutive cases a malignant sarcoma in dogs has been cured by bleeding the animal and transfusing it with the blood of dogs immunized to this tumor. But the cure of advanced cancer in a human being presents many peculiar difficulties. It may be unsafe to make any predictions, but it is certainly legitimate to claim that the therapeutic principles established in lower animals will prove applicable in some form to man for cancer as for diphtheria. Hence we may endorse the statement of Ehrlich,[19] that the beginning of the end of the cancer problem is in sight. By the systematic pursuit of the principles of cancer growth and immunity already discovered by means of animal experimentation we may confidently hope to prevent some cancers, to check others, and greatly to reduce the incidence and mortality of this disease.

These are some of the practical results of the new era of experimental cancer research. From the standpoint of rational therapeutics the results of five years' work by the experimental method overshadow those of the thousand years preceding. Medical history offers no similar demonstration of the wisdom of absolute freedom for science in the use of animal experimentation. Thousands on thousands of fruitless efforts extending over at least a century were made to transplant tumors before a single definite success was secured. Yet it is said that needless repetition of experiments ought to be checked. Moreover, these results have not been reached without bitter controversy. Every step of the way has been energetically contested. Many loudly proclaimed that the experimental tumors of lower animals were not true cancers. Yet it is now known that every essential property of human cancer is exhibited by the cancers of mice, rats, and dogs. The immediate requirements of the practicing surgeon, and some theoretical burdens of the physiologist and biologist and of other scientists interested in cancer, have perhaps not been affected in a startling manner, so that in some quarters appreciation of the true value of this work may be slow. In the rear of every army of progress there is a scattered following of disaffected non-combatants, and modern cancer research has, therefore, been pronounced wholly fruitless by some uninformed persons.

To all critics, whether helpful or destructive, the answer must be that there is no prophet directing cancer research. No doubt posterity will be able to look back to the beginning of the twentieth century and point out that this or that piece of work was not in the direct line of progress. But here and now the most mature, although uninspired, human judgment says that genuine progress has been made into the dark domain of cancer pathology by means of the experimental method; that this knowledge could be acquired in no other way; and that these principles must be mastered before the cure of human cancer can be devised or attempted. Some critics seem to assume that the concentration of interest on the experimental studies has distracted attention from other equally important branches of the subject. But not the least valuable result of the experimental work has been the renewed impetus given, and the new view provided for the investigation of such topics as the inception of tumor growth, the laws of nutrition of tumor cells, and the influence of neoplasms on the body.

In view of the great significance of cancer for the animal kingdom, especially for man, and of the sudden transformation of the gloomy aspects of the problem wrought by the introduction of the experimental method into this field, what is the duty of the layman toward animal experimentation and cancer? Who may dare to lay obstacles in the way of this progress, or to obstruct the ray of hope that begins to shine for the victim of cancer? In America the workers in this and allied subjects look forward with confidence to the moral support of every intelligent person, and even anticipate that men of large minds and large means will come forward and adorn the land with one thoroughly organized and fully equipped institution for cancer research.

19. Ehrlich: Arb. a. d. k. Inst. f. exper. Therap. zu Frankfurt a. M., Jena, 1906, p. 78.

THE DIAGNOSTIC IMPORTANCE OF EXAMINATION OF THE FECES *

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INTRODUCTION

At the present time when the medical laboratory men are following Ehrlich and Wright into the fourth dimension of medical science, when clinicians cry for a "dead-sure" test and when all demand nice, "new," clean work, it would seem a thankless task to spend fifteen minutes in talking about stool examination. I also would much prefer as subject the "complement fixation of this," "or the opsonic index of that," etc.; but a varied experience in clinical laboratories has taught me the importance of stool examination, and its growing importance now that functional diagnosis is rightly demanding more and more attention. While I was in charge of a clinical laboratory to which specimens were sent from all directions, many mistakes by physicians came to my notice, of which the following are a few illustrations: a strip of mucus was mistaken for a "decomposed tapeworm"; normal meconium was called blood; a roundworm six inches long was diagnosed as hookworm because it resembled a much-enlarged picture of uncinaria; solid fat was not recognized at all; soap globules and vegetable cells were called eggs, and eggs of harmless saprophytes were considered those of pathogenic parasites. But stool examination is fast assuming a new and very practical importance. Functional diagnosis is the subject of the future. We now no longer ask merely, "What is the matter?" but also, "How much is it the matter?" and to gain any idea of the functional ability of the stomach, bowel, pancreas and liver, the stools must be studied.

My paper is not so much for the general practitioner who is willing to remain ignorant of the difference between an antigen-amboceptor combination and a thermostable immune opsonin, but who does know mucus when he sees it, as it is for those younger than I who lose the valuable information which stool examination might give them.

In the following paper I shall speak only of those findings which are of value to the busy general practitioner, omitting those methods of investigation which are reserved for the clinical laboratory.

At the onset permit me to emphasize one test which is very important; in fact, is the basis of all stool-work; the determination of the number of hours required for food to pass from mouth to rectum. This is easily determined by giving the patient with breakfast about one dram of charcoal or a little carmine. These are easily recognized in the stool. In some groups of cases it is well to use this test as a routine, and the results are often interesting.

This test may be used to test the presence of the so-called "latent constipation." In this condition it is supposed that while there is a normal-appearing stool every day and, therefore, no suspicion of constipation, yet the intestine contains always the feces of two or three days instead of but one, and each stool is, therefore, the refuse of the third or fourth day before instead of the second. While I would not try to be positive I do not believe in this idea.

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MACROSCOPIC EXAMINATION OF STOOLS

It is from the inspection of a stool that one gets the most information. How few physicians ever look at the stools of their patients! How many are content with the nurse's stereotyped description, e. g., "a moderately large, fairly well-formed stool."

In certain conditions the appearance alone of some (but not all) of the stools of some (but not all) patients suffering from these diseases is at certain stages (but not all) of these diseases sufficient for diagnosis. But because the appearance of all the stools is not diagnostic one should not refuse the aid occasionally given.

As a rule the patient needs no aid in making this diagnosis of constipation, but it is otherwise with those who think their periods of constipation normal and who complain of the brief periods of diarrhea. These persons illustrate the old and very true, if not strictly medical, French adage that "diarrhea is one of the best symptoms of constipation." The stools in this condition are rather characteristic, since in the fluid stool are seen flecks of mucus and small, hard fecal masses which are evidently broken off from impacted masses higher up which cause irritation and so the diarrhea.

In mucous colitis, mucus is passed with the stools, sometimes a few shreds, sometimes many and in some cases the stool consists of nothing but mucus. One patient recently passed nearly a pint of mucus in one stool. Some think that they have passed pieces of bowel. These strings of mucus should be searched for in all doubtful cases with abdominal pain. Unfortunately general practitioners too often fail to look for them, or do not appreciate their significance. The nature and the differences between mucous colitis and membranous enteritis, if differences there be, cannot be discussed here, but even the most conservative will admit that the nervous element in both is of great importance, while the most radical will maintain that, except in a few cases due to pelvic tumor, mucous colitis is always a purely functional neurosis. Over 95 per cent. of the patients are nervous women and should be treated as such and the local bowel condition left alone. Were their stools examined for mucus, very many of these women would escape operations for appendicitis, renal colic, floating kidney, gallstones, and ovarian troubles, one or each in succession, since the colic of mucous colitis can stimulate each of these troubles. During the past year there have come under my personal observation roughly two thousand nervous women, and the history some give is very sad. They have had from one to ten operations performed on their abdominal and pelvic organs, and yet give clear histories of mucous colitis antedating their first operation. I feel this so strongly that in all doubtful cases suggesting any one of the above conditions I question carefully for the history of mucous stools, and in case these are or have been present will consent to operation only when the indications of a local trouble demanding operation are very conclusive.

The rare and interesting condition of intestinal sand does not attract nearly as much attention as it deserves. Intestinal sand is the name given to the sediment of fine granules which sometimes settle in a fresh liquid stool. These granules are from 1 to 2 mm. in diameter, are dark red, green or black in color, are spherical or slightly irregular in outline, and very hard. They are often present in great abundance, even half an ounce in one stool. Examined chemically, they have been found to consist of the phosphates and carbonates of calcium especially, but also of magnesium, iron, etc. A little

organic matter, fat, cholesterin, and also bacteria are present in them. In one case they consisted of calcium sulphate. Those I have examined chemically consisted of a little plug of epithelial cells impregnated with carbonate salts. When but a few granules are present there is often a question as to the correctness of the diagnosis. Pseudosand is common. This may be the seeds of small fruits, various food adulterations, and various vegetable structures. The lower power of the microscope would easily detect the difference, and yet raspberry and similar seeds (perhaps timothy-grass seeds) have been sent to use for diagnosis. Intestinal sand appears intermittently in the liquid stools of some nervous persons. It may or may not be associated with mucus. It is perhaps due to a secretory neurosis and has the same significance as mucus.

A definite colitis is usually indicated by the presence in the stools of pus- and blood-containing mucus. Whether or not there is increased frequency of evacuation will depend on the portion of the colon involved. Rosenheim has recently emphasized the relation between the portion of bowel involved and the symptoms. There is a form of colitis of the descending colon and sigmoid flexure especially, in which the stools are almost characteristic. Food is evacuated in from five to eight hours after ingestion. Its color, the test for bilirubin and the appearance of the muscle fibers and vegetable tissues on microscopic examination show that digestion in the small bowel is practically normal. The stools are soupy in consistency and contain many small masses of blood-stained mucus. On microscopic examination the red cells and leucocytes in the mucus cells are found to be in almost perfect condition. The stools are not very frequent, perhaps four or five a day, which is evidence of a normal rectum. This condition in one case now under observation has continued for over twenty years, without any periods of constipation, which differentiate it from the amebic colitis, and with little influence on the general health.[1]

In cases of rectal carcinoma the stools are very frequent and contain much blood and some mucus.

In all cases the feces of mucus should be studied for amebæ.

In the case of children the stools of blood-stained mucus should always suggest the possibility of intussusception.

Acholic stools are usually betrayed by their clay color, soft consistency and foul odor. They mean obstruction of the common duct. But somewhat similar-appearing stools are passed by persons on a milk diet, or other diet rich in fat. The stools in a case of violent diarrhea may be colorless. In some cases the putty-like stools are due to bacterial fermentation which have changed the bile pigments to leucourobilin. In the latter case the color will return if the stool stand in the open air. Bile in abundance can often be extracted by alcohol and ether from a stool the appearance of which would suggest its absence. When a common duct obstruction is suddenly relieved the stool sometimes has a bright orange color, due to bilirubin which normally is never present in any amount.

Fatty stools may indicate several possibilities. Large amounts of fat are present in acholic stools and in those of a person on a milk diet or a diet including much cod-liver-oil or olive-oil. The fatty stools of patients with diseases of the intestinal wall which prevent absorption, as tuberculosis or malignant diseases of the retroperitoneal lymph glands which blocks the flow of lymph are often of great aid in diagnosis. But true steatorrhea is present practically only in cases with total destruction of the pancreas and not always then. The fat of these stools resembles melted butter and hardens at once on cooling. The stools most characteristic of pancreatic disease are those described by Ury and Alexander. These are fairly solid and contain a great deal of visible fat, much muscle fiber, and are the stools of patients who are not jaundiced. But the large bulky, fetid, greasy stools, the volume of which seems out of all proportion to the amount of food eaten, which show signs of active fermentation and which contain gross masses of undigested meat and vegetables, are also very characteristic of deficient pancreatic fluid, and should be looked for in cases of malnutrition.

In pancreatic disease the inspection of the stools often gives very important information. In acute hemorrhagic pancreatitis an intractable constipation usually obtains at first; then, if the patient lives, a diarrhea which is just as intractable. The stools may or may not be acholic. In five cases from literature fat was grossly visible. In gangrenous pancreatitis a persistent diarrhea, sometimes with involuntary stools, is the rule. The movements are thin, copious, very fetid and in one case green, much resembling vomitus. In three cases abundant blood was present.

In abscess of the pancreas the diarrhea is very severe. The movements are profuse, watery, fetid, although in some cases they are solid and very offensive. In one fatal case there were over twenty movements a day. In one case there occurred a profuse hemorrhage, about 1,000 c.c., from the bowel. In only one case was fat recorded, while in several cases pus was grossly visible. In cases of pancreatic cyst the stools will depend on the injury the pancreas has suffered. The stools are usually normal, but in five a definite steatorrhea was present. The diarrhea pancreatica which accompanies the evacuation of the cyst through the bowel is especially interesting. Late in a case of chronic pancreatitis, diarrhea is the rule. The stools are pale in color, of offensive odor, contain much undigested food and sometimes rather large lumps of fat. Blood is sometimes present in the stools. In cancer of the pancreas the stools may be normal, but steatorrhea and azotorrhea often are present near the end. In 13 cases of calculus of the pancreas with subsequent atrophy, blood was present in the stools of 4, and fat in those of 3.

The tarry stools in cases of gastric and duodenal ulcer are characteristic of severe hemorrhage in the upper alimentary tract. One practically never sees really tarry stools in typhoid fever; in the most of these cases the blood is fairly bright. But the stools may be fairly black when the patient is taking bismuth subnitrate or after they have stood for a time in the air, if he is taking iron.

Gall-stones should always be searched for in the stools of a case of suspected gall-stone colic. The stool should be mixed with water and strained through a coarse mesh. Failure to find the stone may mean that the right stool was not examined, that the stone was soft and disintegrated in the bowel, or—and this is most important—that the colic is due to some other cause. In this connection should be mentioned pseudogall-stones. Of these the fat concretions are most important. These may be from a pea to a hazelnut in size and consist of fat of

1. At autopsy the colon from just above the cecum to the sigmoid was uniformly small, scarcely admitting the finger. Its mucosa seemed in the main replaced by scar tissue in which were innumerable small bleeding points. The patient died of carcinoma of the cecum. There was no evidence of tuberculosis or amebic dysentery.

high melting-point. They may follow a meal rich in pork fat, mutton-fat, tallow, etc., but the most are seen in the stools of a person taking much olive-oil. It is these pseudostones which give this oil its undeserved reputation as of value in helping the gall-stone to pass. Also masses of vegetable and especially of fruit tissue may appear as concretions and they are sometimes harder than gall-stones. It is well to split open a suspected gall-stone and to examine its fractured surface, or to dissolve a little of it in boiling alcohol and to obtain cholesterin crystals when the alcohol cools.

The curds seen in the stools of infants and of adults on the milk diet are usually said to consist of casein and are interpreted as evidence that milk is not well borne. But these "casein-curds" often consist of almost pure fat.

One never in a normal stool finds gross particles of meat, bread or potato. These may be present in diarrhea due to any cause, but if they are seen in a firm stool the evidence is in favor of pancreatic disease.

The normal stool may contain visible masses of soaps —the yellow masses of calcium soaps, and masses of colorless soaps.

The study of intestinal worms is of growing importance. The ordinary roundworm and links of the tapeworm are readily recognized. It is well to remember that decomposing tapeworm-links are practically never found in a fresh stool. That which suggests this diagnosis is almost invariably a string of mucus. To find the head of the worm it is best to shake up the stool in water and allow it to settle. All fragments of the worm will promptly sink to the bottom.

Tænia solium is in this country an exceedingly rare worm. I know of but one certain case. But one is often tempted to make this diagnosis, since the over-ripe segments of the *Tænia saginata* would appear to have a uterus with few coarse branches. An expert recently visiting the museums of some of our medical schools was able to find no specimen of *Tænia solium*. Of thirteen specimens thus labeled, eleven labels were certainly incorrect and the other two worms were too decomposed for identification.

To find the smaller worms, the stool should be well spread on a porcelain plate. Oxyuris, contrary to popular belief, does inhabit the intestine as high as the cecum or even higher, and may be found in the body of the stool. *Uncinaria americana* and *duodenalis* can easily be differentiated under a dissecting microscope if one take trouble to examine the head and caudal bursa. The reason why adult trichinas and whipworms have not been found oftener is that they have seldom been looked for.

THE MICROSCOPIC EXAMINATION OF THE STOOL

This is really the only method which the clinician can use to judge of the functional ability of the digestive organs, since accurate metabolism work is impossible for him. But to form a correct estimate the patient must be on a special test diet. That to be recommended is the Strasburger and Schmidt diet. To examine the stool microscopically the particles to be examined should be selected with care. If the stools are mixed with water and spread on a plate the choice often is easily made. If not, the stool may be mixed with water in a glass jar. The mucus will tend to rise to the surface together with some of the vegetable tissue. Parasites' eggs will sink together with fragments of food, meat especially. From this water suspension may easily be selected particles for further study. The variety of objects which may be found on microscopic examination of the stool is unlimited. It will depend on the food eaten, on extraneous matter eaten with the food, on substances contributed by the digestive organs, on the flora and fauna of the alimentary canal, and lastly on the extraneous matter which adds itself to the stool after it is evacuated. This means that the microscopist may run across almost anything. He should be able to recognize vegetable tissue in general, especially the common forms of fiber. Especially should he be able to recognize chlorophyl-containing cells. The spiral cells are easy to recognize; the guard cells of leaves have been taken for fragments of carcinoma. The thorns of the down on some fruits are often diagnosed as worm embryos, while single cells, spores, pollen, etc., are often mistaken for eggs. Unfertilized eggs often do look very much like vegetable cells. Muscle fibers with the cross-striation well preserved are easy to recognize, but those partially digested are more difficult. It is important to be able to judge roughly whether an unusual number of fibers have appeared in the stool and if they show signs of insufficient digestion, for the condition known as azotorrhea is important in the diagnosis of pancreatic disease. By this we mean the presence in a firm stool of an unusual amount of undigested muscle.

One who systematically examines stools will surely find many eggs and larvæ which he cannot recognize. The great wonder is he does not find these oftener. Two easy mistakes are thinking that the eggs of *Tyroglyphus siro*, or the flour mite, are those of *Bothriocephalus latus* and mistaking the larvæ of many dipteræ for the rather serious screw-worm. The number of dipteræ and other insects which have access to food and to the raw materials of which food is made is great. Here they lay their eggs or add their bodies to the dish. In the stool one finds eggs, larvæ, perfect insects, and fragments of these. But the insect contaminations of greatest importance are those which are added to the fresh stool if it is not carefully covered as soon as evacuated. Fortunately we can usually recognize these as accidental findings. If in doubt one can always refer the specimen to the experts at Washington. In general these extraneous saprophytes' eggs are larger than those of pathogenic parasites. But just as serious is the danger of interpreting vegetable cells and even some soap masses for eggs.

The work of careful men has shown what a large number of persons are the hosts of animal parasites. *Ascaris lumbricoides* was found in about 0.4 per cent. of all examined, *Oxyuris vermicularis* in 0.8 per cent., strongyloid worms in 0.6 per cent., *Trichocephalus trichiurus* in 10.3 per cent., and *Uncinaria* in even 3 per cent. of all examined in some portions of the South. The eggs of *Ascaris lumbricoides* occur in large numbers in the stools of infected persons. When fertilized they are very characteristic, but the unfertilized eggs are often mistaken for vegetable cells. The eggs of *Oxyuris vermicularis* may be found in the stools, but more often in shreds of mucus on the surface of the stool and still more often in the scrapings from the margins of the anus. The eggs of *Uncinaria duodenalis* and *Uncinaria americana* are exceedingly important, since the anemia these worms produce is now recognized as a disease of national importance.

In searching for eggs the temptation is to pick out for examination a fragment of feces at random. But when in doubt the stool should be mixed with water, sedimented or centrifugalized and the sediment examined. It is often wise to give a dose of santonin or

thymol to aid in the search for worms. If an infection with *Strongyloides intestinalis* is suspected the stool should be placed in a dish, a small depression made on its surface, this filled with water and the stool left in a thermostat over night. If embryos are present they are easily found as eel-like worms actively swimming in this water. The eggs of these worms are seldom found in the stools. Of the protozoan parasites the various flagellata and ciliata are usually easy to find because of the commotion they make. *Amœba coli* is an exception to this. The stools, or better still the mucus which the eye of a rectal tube scrapes from the rectal wall should be examined while very fresh and, during the winter, before it has chilled. One examines the flecks of blood-stained mucus, if such there are; if not, the liquid portions of the stool. Definite ameboid motion, by which we mean the extension of a hyalin pseudopod from a granular endosarc, should be demanded. If in doubt the safest rule is always to discard the doubtful cell. One learns much now of the nonpathogenic *Entamœba coli* and the pathogenic *Entamœba dysenteriæ*, and of the encysted stages of the latter; but for the clinician these terms are only interesting reading. If he finds a small ameba, without hyalin ectosarc, in the fluid part of the stool, not associated with blood and mucus, and in a case the symptoms of which are not those suggesting amebic dysentery, he may possibly be safe in calling it the harmless *Entamœba coli*. Fortunately, however, during acute exacerbations the amebas are often numerous, are found in flecks of blood-stained mucus and themselves often contain one or more red blood cells. Clinically cases of amebic dysentery are characterized by chronicity and the tendency to relapse. The cases of great importance are those of amebic abscess of the liver and yet in patients who give no history of dysentery. The stools of all cases of suspected liver abscess should be carefully examined.

Pus in the stools is seldom recognized grossly, but the mucus flakes clouded with pus cells are helpful in the diagnosis of ulcers low in the small bowel and colon. Red blood cells are usually seen in the mucus. From the condition of these red cells and the conditions of the leucocytes one can easily get an idea as to the source of the mucus. Charcot-Leyden crystals, if numerous, are important as suggesting an animal parasite.

Those who cling to the possibility of an autointoxication from the intestine are still making cultures of the stools for bacteria. As is well known, bacteria may make up even one-third of the dried stool. Many of these are dead and most cannot be demonstrated as alive by any of the common methods of investigation. These bacteria of the bowel contents may be classified as the normal flora, the harmless organisms accidentally swallowed with food, and those causing disease. Among the flora are *Bacillus lactis aerogenes* from the upper bowel, and *Bacillus coli communis* from the lower, *Bacillus subtilis*, *Bacillus alkaligenes*, and, for the suckling, *Bacillus bifidus*. Various thermophilic and acidophilic organisms may occur in great numbers.

Among the interesting pathogenic organisms which are frequently found are *Bacillus pyocyaneus*, the various staphylococci, streptococci, *Bacillus tetani*, *Bacillus aerogenes capsulatus* and *Bacillus tuberculosis*. That many of these pathogenic organisms, especially the streptococci and staphylococci, are almost normal flora, is seen by their almost constant presence in appendix abscesses and in the peritoneal pus in cases of perforation of the bowel. *Bacillus tetani*, *Bacillus aerogenes capsulatus*, *Bacillus bifidus* and *Bacillus subtilis* are some of the important Gram-positive organisms which have attracted attention recently in cases of pernicious anemia. In cases of suspected tuberculous enteritis it is important to search for the tubercle bacillus. To fail to find it has but little value. In cases of pulmonary tuberculosis, bacilli may often be found in the stools. To search for this bacillus it is well to examine any particles of mucus which may be present, but to digest a stool is seldom profitable work. If one wishes to examine a solid stool, a small fragment is mixed with 1.5 c.c. of distilled water. To this is added 54 c.c. of a mixture of equal parts alcohol and ether, and it is centrifugalized for ten minutes. A smear is made from the sediment. Of course, one should test the bacillus as to its alcohol-fast as well as acid-fast properties.

In certain cases of intestinal fermentation it may be well to examine for *Bacillus bifidus*. The search of *Bacillus typhosus* by the use of the Drigalski-Conradi medium is seldom of practical importance in the diagnosis of typhoid fever.

CHEMICAL ANALYSIS

The chemical analysis of the stool is seldom of any practical importance in the hands of clinicians, but the detection of occult blood in the stools is a marked exception and should always be tested for in doubtful gastro-intestinal cases. Even the fresh blood accompanying a firm stool and ascribed to hemorrhoids is of importance, since there is evidence that these repeated small bleedings may lead to severe anemia. Blood in any amount from the cecal region or colon is discharged red and fluid, but blood in small quantities from even the colon, or from the small intestine, is usually mixed with the feces and can be detected only on chemical or spectroscopic examination. A great deal of interest, and rightly, is now centered on the minute traces of digested blood found in the stools in malignant disease or ulcer of the stomach. The idea is that a constant trace is suggestive of cancer, while in ulcer there are periods with much blood present and then periods with none. Since tests are also given by all hemoglobin-containing and some by chlorophyl-containing foods, and all by some medicines, the patient should be on a diet of milk, bread and eggs, the limits of which diet-period are sharply marked by charcoal. The turpentine-guaiac test is given positively by too many foods, and so the aloin test is preferred because of its delicacy and because it is not given by chlorophyl or urobilin. This test too often fails to show blood with tuberculous ulcers of the bowel, while in chronic passive congestion blood is usually present. This test has proved of greatest value in the diagnosis of gastric carcinoma and in the differential diagnosis between ulcer of the stomach and nervous gastralgia. But in the case of gastric carcinoma I do not think it is as important as the test for blood in the gastric contents.

I believe that the bilirubin tests also have practical clinical value in the diagnosis of the location of a bowel trouble, whether in the colon alone, in which bilirubin cannot be detected in the stools or in the small bowel also, in which cases it will be formed. Schmidt's test is easy and satisfactory.

Microscope-stage chemistry is often valuable, and is easy for one practiced in that technic. One forms an idea as to the amount of muscle fibers digested, and readily distinguishes between mucus and vegetable tissue. Fatty acid crystals are seen as short, delicate curved needles which are clustered in thick masses. These are dissolved on warming and in ether. Soap may

be present in yellow masses of calcium soaps, in colorless masses and in long needles in clusters or fans, or as short, plump crystals or scales. The most of the crystals one sees are soaps. Soaps are not soluble in ether but are in water. One of the best tests for soaps is to warm the stool on the slide with a drop of acetic acid and watch the crystals of fatty acid crystallize out. The droplets of neutral fat are soluble in ether and give the Sudan III test. But droplets are seldom seen unless there is a great increase in the stool. Hawes[2] has shown that an increase of visible fat under the microscope will certainly mean an increase of fat in the stool, but there may be an increase of the total fat without any visible evidence of it. An easy way to test the presence of fat in the stool is to press a portion under a cover-glass. If the portion selected be mucus or vegetable tissue the glass, when released, will spring back and air will rush in under the cover from all sides. If fat, the glass will stay down.

Starch granules are easily recognized by running a drop of Lugol's solution under the cover-glass.

Both pepsin and trypsin may be demonstrated in the stools in a case of diarrhea. The detection of trypsin has again recently attracted attention.

ABSTRACT OF DISCUSSION

DR. HENRY F. HEWES, Boston: Many men turn away from work on the feces because they claim the new methods of examination are so difficult. As a matter of fact, it is a very simple matter to make an examination of feces if time is taken and ordinary apparatus be at hand. It is much easier to obtain feces than it is to obtain the gastric contents. It is a common thing to have referred to me patients with intestinal trouble of a year's duration who have never had their feces examined. I think I have saved at least ten such individuals from the surgeon's knife, from an operation for appendicitis by examining the feces and finding mucus. There should be more study of the food elements and a determination of the functional conditions. A common objection to this is that it entails the giving of a test diet and patients will not take the test diet because it means from two to three days' deprivation of their ordinary meals. Of course, when we want to be accurate the test diet must be used. But if the observer has much experience of feces examination he can draw his conclusions from the feces of any simple diet and need not keep to the strict test diet. For example, if a sufficient amount of fat is taken and if there is much disturbance in digestion or absorption of that fat there will be some evidence of it whatever the diet and one can judge pretty accurately whether there is a disturbance of fat digestion or absorption causing a failure of nutrition. I do not think that any difficulty in giving the test diet should stand in the way if one takes a little trouble. Take a microscope and examine the feces and learn what food has been taken; if one is familiar with the feces one can soon learn to note variations from the normal for the amount and character of the food taken in any given case. Certain methods should be used in a routine way in all cases in which there is any question, and these methods can be carried out perfectly well by the general practitioner in his office. It is easy to obtain feces and it is easy to learn without special instruction how to examine the feces and to recognize elements as they appear normally or in pathologic conditions; but the physician must stick to his work for a month or two until he familiarizes himself with the normal forces and learns to recognize abnormal elements.

DR. GEORGE DOCK, New Orleans: I have practiced the same methods for a long time and I can confirm every thing that has been said about the value and practicability of such an examination. There are one or two practical difficulties in the examination of stools that I have encountered which may be worth mentioning. As Dr. Hewes has just stated, the examinations are best made in the office; the more recent the stools the better. It is surprising how many persons can produce a stool at command. One can get a stool almost as easy as he can get a sample of urine in many cases. By placing a flat dish or a developing tray under the seat of a closet one can get a stool without urine. If the patient cannot have a stool at command give him a glycerin suppository. But in some cases stools must be sent. It is as important that the patient should be told how to prepare and send the stool as it is to tell him how to send a specimen of sputum. The ordinary method of obtaining a stool in an ordinary chamber and then decanting it is open to criticism. The stool should be brought to the physician in as natural condition as possible; the best thing to use is a so-called granite custard dish. Formerly I used a photographic developing tray, but the dish is cheaper and better and the stools can be kept fresh with a lid. Next to that is the ordinary fruit jar. Another point I wish to speak about is the great objection many have to examine stools; the general practitioner speaks of the disagreeableness of this sort of work. That is an individual's opinion of course. I have found, as a general thing, that the examination of a pathologic stool is no more disagreeable than the examination of sputum or stomach contents. An examination of a normal stool, however, is more disagreeable. The more pathologic the stool is the less repulsive is it. If one will practice examinations of stools, doing the actual work, not only will he find out much diagnostic information, but will be surprised to see how easy a matter it is and how few real technical difficulties there are.

DR. DAVID L. EDSALL, Philadelphia: A point of importance in regard to the test diet is its value in comparing one case with another; but to use the test diet as the only method of examination overlooks another very important point. What we want to know is how the patient digests the food taken in his ordinary diet; hence I think the most important thing in determining the condition of a patient so far as examining the stools is concerned, is to examine the stools when he is on his ordinary diet. It is easy in this way, as a rule, to determine whether fat, protein or carbohydrate is causing disturbance in the amount and kind of food that the individual has been taking. If we simply use the standard test diet which ordinarily differs very much from what the patient has been in the habit of taking, we often do not determine what is wrong in his manner of life. Another thing which has not been mentioned I have found extremely helpful, namely, observing the extent to which the stools ferment. It is easy to do this by simply keeping a stool in a closed jar at room temperature for from twelve to twenty-four hours and observing what degree of fermentation occurs, and the result often helps clearly in determining whether the symptoms of fermentation are due actually to abnormal degrees of fermentation in the bowels or whether the flatus and other similar symptoms are due to neurotic disorders of peristalis, etc. It helps also in outlining the diet and in determining the degree to which improvement is taking place. As to the question of mucus I feel positive that there is a strong tendency to make too much of this unless very abnormal amounts are present. Patients readily get terribly hipped about the presence of a small amount of mucus in the stools. Small amounts usually mean nothing except that there is some slight source of irritation and, probably, that Nature is making an effort to limit this irritation by protecting the bowel wall with mucus. One common and important cause of the persistent presence of mucus in the stools is the more or less excessive use of purgatives; many cases of so-called mucus colitis are merely purgative colitis and not a disease. In a large proportion of instances getting the patient to stop the use of purgatives by means of diet and other normal measures will cause the mucus to disappear from the stools entirely.

SIR JAMES ALEXANDER GRANT, M.D., Ottawa, Canada: I have listened with pleasure to the paper and discussion on the diagnostic importance of examining the contents of the alimentary canal. A neurotic condition has just been referred to. For nearly fifty years, since graduation at McGill University, I have carefully observed varied conditions of the alimentary canal, and years ago was convinced that a neurotic state of this canal had more to do with its troubles than is

2. Hawes: Boston Med. and Surg. Jour., 1909, clx, 429.

general credited. My first effort on this subject was fully twenty years ago ("The Alimentary Canal and Human Decay, With Reference to the Neurons") and recently in the *New York Medical Journal* in a brief paper on "The Clefts of The Axis Cylinder, The Cable of the Nervous System." Prof. Walter Foster in his last great work (page 122) adverts to the axis cylinder having clefts, which have been observed during life and after death, but no reference whatever to the results of such an abnormal condition. Professor Sherrington of Manchester and McDonald of Sheffield, England, have carefully defined the saline constituents in the axis cylinder. Imperfect assimilation of food products, animal and vegetable, generates poisonous gaseous material, which acting directly on these very axis cylinder salines produces the clefts in question and hence the telling systemic results. There are troublesome digestion, inability to move about with usual activity, ordinary business duties most troublesome, the heart's action feeble and imperfect, frequently approaching heart failure. Why all these indications of constitutional debility? They are entirely the result of defective power in the elaboration of blood, the outcome of these very clefts, so disturbing to the histogenetic process, in Nature's greatest laboratory, where the chief pabulum of life, blood, is generated. To counteract this there should be strict attention to diet, massage over the abdomen with antiseptic liquid soap for ten minutes daily and continued for two or three weeks, and after each massage application of electricity by means of a neurotone and dry electric cell for ten minutes at each application. Much benefit is also derived from application of electricity to the moistened extremities for a few moments daily, thus calling into action the terminals of the crural and sciatic nerves—to the pelvis, spinal cord and abdominal ganglionic system. Beyond a doubt electricity removes the clefts and reestablishes digestive power to a remarkable degree. We are but in the initial stage in this investigation, which I have briefly presented on the present occasion, feeling confident years can thus be added to any ordinary life in middle age entirely free from organic disease.

DR. WOODS HUTCHINSON, New York: There seems to be a healthy recognition of the limitations of modern methods of diagnosis; as yet we have not come to know just how far they can be depended on. One must consider both the sample of feces and the clinical history and, in case of doubt, the latter should dominate in our decision. One point in particular in an examination of the feces should be emphasized and that is: Of what do the feces actually consist? Two-thirds of the feces consists of the secretions of the glands of the lower half of the remaining third of bacteria intestines. The 85 and 95 per cent. of the food that is properly digested does not appear in the stools. Only the 5 per cent. of husks, bran, fibers, seeds, etc. No wonder we gaze perplexedly at the odoriferous mass, trying vainly this, that or the other food substance. Our surgical friends called attention to experiments made in the Columbia University laboratory two years ago on the various forms of intestinal suture and closure. They cut off and sutured the ends of a loop of the small intestines in such a way that it was still connected with its blood vessels, but cut off from the lumen of the food canal. In four or five days this loop of intestine was found to be packed with apparently normal feces secreted by the glands in its mucous lining. A large part of the feces in a normal individual bears no distinct or definite relation to the food at all, only such parts of it as have escaped digestion. The recognition of mucus in the stools is most important, it is a secretion always abnormal in appreciable amounts and indicative of some neurotic disturbance in the individual. I have seen four patients with mucoenteritis who had been operated on for appendicitis; one woman was about to be operated on a second time and was only saved when the surgeon saw the scar of the previous operation. Colica mucosa is an urticaria of the bowels, as asthum is an urticaria of the bronchi. Mucus in strings, flakes and spirals and the intestinal sand, so-called, may be compared with Curschmann's spirals and Leyden's crystals found in asthma. In both diseases relief is best obtained by attention to the nervous system, especially the vasomotor. Place a patient with a mucoenteritis in bed, feed liberally and leave the bowels alone, especially avoiding cathartics, and more will recover than if any intestinal treatment be employed.

OPERATIVE TREATMENT FOR CIRRHOSIS OF THE LIVER*

GEORGE DOCK, M.D.
NEW ORLEANS

Operative treatment for cirrhosis of the liver has engaged the interest of many physicians and surgeons since Talma proposed it twenty years ago. If it is not more frequently carried out, the reason may partly at least be found in the high mortality immediately following the operation or within the next two months. I shall not attempt a new statistical study, since this has been done well by several others within a recent period, but shall point out certain facts that need to be considered in connection with all novel operations and especially for those in diseases inevitably fatal, for alleviation of symptoms, and not with a view to radical cure.

The statistics of the Talma-Morison operation and its modifications and substitutes are unfavorable partly because many patients have been operated on too late to do good, and when the risk of failure was excessively great on account of other organic disease. Such a thing happens in all new operations, but, instead of stopping operative treatment altogether, it should, if the operation has a single thing in its favor, lead only to more careful selection, earlier diagnosis, and greater care in the operation and after-treatment. Moreover, the death-rate and the shortening of life must not be compared with similar incidents in persons previously healthy, or persons with trivial diseases. As in so many other border-line diseases, we should think chiefly of the pain and disability, and the inevitable death within a time not very long, under the usual methods of treatment. From that standpoint, a single patient made comfortable for a time beyond the usual expectation outweighs many others whose days may have been lessened, though they lost nothing they ever could have gained in function. In such a case, it seems only fair to put the matter as plainly as possible before the patient, and to let him decide. Many, in the particular case now before us, will prefer the cathartic and the trocar, just as many others will refuse to stop the injurious habits against which they are warned. Some, however, will prefer a definite risk with the hope of relief, and it is in order to show what may be done even under many disadvantages that I bring the subject up at this time.

I have long been interested in the subject, but in most cases could not get the patient and surgeon to coincide. In some cases the one, in others the other, demurred. In one case I found what seemed an ideal subject, a man with recently developed ascites and distinct but not severe symptoms of cirrhosis, no cachexia, and no anomalies in the urine. Paracentesis gave a characteristic fluid and showed the liver not enlarged. After the situation was explained to the patient, he chose an operation, which was performed by an experienced surgeon with every appearance of technical accuracy. The liver was moderately cirrhotic, the spleen enlarged, the veins in the omentum and under the parietal peritoneum distended. Death occurred on the third day from septic peritonitis. Such an event is always discouraging, and it gives me all the greater pleasure to report another case in which the duration of life and maintenance of function seem unmistakably lengthened, notwithstanding many adverse circumstances. I cannot claim any credit for the result, which the patient owes to Dr.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Edward Hamilton, of Houston, Texas. I simply have taken advantage of a clinical experiment, with the hope of encouraging others by the lesson it teaches.

REPORT OF CASE

Summary.—Symptoms of cirrhosis of the liver, with ascites following a history of hard work and hard drinking; patient tapped for ascites fourteen times, then had omentopexy, in December, 1902; was tapped ten times after that, up to June, 1903, and since that time has been able to do hard work, only at long intervals having symptoms, which are easily relieved by medicine.

History.—E. D. S., aged 49; single, railroad switchman, American, was admitted to the Charity Hospital, New Orleans, Jan. 7, 1909, on account of fulness of the abdomen, pain in the stomach, vomiting of a large quantity of blood, and tarry stools. The family history is unimportant. The patient had smallpox and gonorrhea at the age of 30, and during the next eighteen years several mild attacks of malarial fever. In 1892 he was shot while aiding the Cuban patriots, a rifle-ball going through the abdomen transversely just below the liver, but not near the portal vein, as indicated by the scars. There was constant oozing for twenty-four hours, but in a week the wounds healed and the patient had no further trouble from them. The patient has worked on railroads and in the oil fields, working hard most of the time, and exposed to risks from bad food and water, and malarious climates most of the time. He has chewed tobacco since the age of 10. He drank regularly but moderately up to fifteen years ago, when he began to get drunk about every four months, spending on drink all he had saved in the interval. The periods of intoxication averaged five to ten days, but were sometimes prolonged to two to four weeks. In 1902, while working in the Texas oil field, with poor food and great exposure, he began to feel bad, drowsy and tired, and developed a severe diarrhea which resisted treatment. In about three weeks the abdomen became swollen, and he then went to St. Joseph's Infirmary, Houston, Texas, for treatment. He was under the care of Dr. Edward Hamilton, to whom I am indebted for information regarding the operation, and also for the privilege of reporting the case. The diagnosis was cirrhosis of the liver. The ascites was severe, the abdomen measuring 45 inches when full, and tapping had to be done at short intervals—six to ten days. After he had been treated three months, and tapped fourteen times, the patient followed Dr. Hamilton's advice regarding an operation. "The abdomen was full of fluid, the arteries and veins of the omentum and peritoneum enormously distended, and the liver hard and nodular. The omentum was sutured with catgut on each side of the wound to the parietal peritoneum. The patient made a good recovery, but had to be tapped ten times during the next four months, and left the hospital in June, 1903, six months after the operation." Six months later he appeared before Dr. Hamilton in order to undergo an examination as brakeman, " and would probably have passed if it had not been for the scars on his abdomen." (The quotations are from Dr. Hamilton's letter.) The abdomen then measured 32 inches. The patient worked in a malarial locality, had numerous attacks of fever, for which he took whisky, and from about five months after the operation he had again taken up the habit of frequent intoxication. In 1905 he had diarrhea, shortness of breath, distention of the abdomen and all his previous symptoms. After trying with no benefit the waters of various mineral springs, he came to the Charity Hospital, and left much improved after two months, having been treated with purgatives, principally jalap. He then remained perfectly well, working as switchman, until October, 1907. Then, having been drinking regularly, he had a return of symptoms, and a hemorrhage from the stomach, and returned to the Charity Hospital, under the care of Dr. John B. Elliott. There was moderate ascites, anemia, and slight icterus. The liver dullness was small; the organ could not be felt. Treatment with compound jalap powder again was followed by complete relief of symptoms, and the patient was able to do hard work again, carrying loads of 150 pounds. Later, a return of malaise and bad taste in the mouth led to drinking. This became worse in the fall of 1908, and a few days before the last admission the abdomen again grew large, there was pain after eating, and the stools were black but became natural before admission.

Examination.—On admission I found the patient almost free from subjective symptoms; temperature, pulse and respiration normal. There was slight emaciation, cachexia, skin was sallow, scleræ not yellow. The heart was in the normal position, the sounds weak but clear, the radial arteries tortuous. The lungs were negative; diaphragm shadow from the sixth to the seventh intercostal space on the right side; the seventh to the eighth on the left. The abdomen was slightly enlarged, one and a half inches above the level of the ribs. The superficial veins running up the middle of the abdomen, continuous with those on the thorax, were slightly enlarged. There was a scar in the median line, 7 cm. long, extending from 3 cm. above the umbilicus. This lay above an oval elevation, corresponding to a soft irregular mass beneath and adherent to the abdominal wall. The liver could be felt; the dulness was small. The spleen was slightly enlarged and hard. There was movable dulness in the abdomen, rising to the umbilicus on standing. There were no hemorrhoids. Urine and blood were negative.

Later Course of Disease.—Treatment was again carried out with compound jalap powder, by my colleague, Dr. J. B. Guthrie. There were no stomach symptoms and no blood in the stools. The distention subsided, though the superficial veins remained enlarged. After a short time the patient was able to assist in the ward work. He was then given a position in the pathological laboratory, later made night-doorman, and has remained well up to the present time.

I can not add anything to the theory of the effect of the operation. I am inclined to agree with Rolleston in attributing the benefit chiefly to the lessening of venous pressure, enabling the liver to deal more readily with the toxic substances passing through it, the improved arterial circulation following the reduction of venous pressure, and the greater chance of compensatory hyperplasia. So far as the ascites is concerned, it seems that in many cases the improvement of that may be due more to the effect of the operation on the serous membrane than to the opening of collateral paths for the blood.

From every point of view it is desirable to operate early, before the liver has undergone advanced degeneration, and before toxemia and disease of other organs have made the operation too dangerous. As to the details of the operation, I shall not discuss those that have been proposed by surgeons, but confine myself to the suggestion that in all cases the abdominal organs should be examined as carefully as possible, in order to furnish data of value in the analysis of future cases.

In view of H. Eichhorst's recent recommendation of cream of tartar[1] for cirrhosis, it is interesting to see how well the compound jalap powder seemed to do in the case now reported, taking down the ascites rather better, it seemed to me, than usual. Cream of tartar is an ingredient of compound powder of jalap, and has been much used alone as a laxative in such cases.

124 Baronne Street.

ABSTRACT OF DISCUSSION

DR. NATHANIEL BOWDITCH POTTER, New York: I should like to speak of a patient operated on by Dr. George E. Brewer of New York at the City Hospital six years ago. The patient has been in my service at either the City or French Hospital nearly every year since the operation. This patient's life undoubtedly has been prolonged over five or six years.

DR. ALBERT E. ROUSSEL, Philadelphia: My experience with cases of this kind has not been so satisfactory as those that have been reported here. I have had under observation at dif-

1. Eichhorst, H.: Med. Klin., 1909, No. 11.

ferent times probably eight or ten patients who have been operated on, and in those with distinct cirrhosis of the liver, with two exceptions, there has been no benefit. I think we should take into consideration the fact that occasionally the mere operation of tapping will result in establishing a compensatory circulation and enable the patient to live for a considerable period of time in fairly comfortable condition. I have such a case in mind now; in this case I made an unfavorable prognosis. After the first two tappings in which two gallons of fluid were removed, the patient, a woman, remained in good health for a period of five years. To be sure, these are exceptional cases, but they do occur, and consequently they should be borne in mind when the advisability of an operation is considered. Another very important point that should be borne in mind is that many of these patients have cirrhosis of the liver long before they come to us because of the ascites. In making examinations for life insurance, we know that there are a number of instances in which men, especially club men and individuals over 40 years old, have relatively large livers; very often such an enlarged liver is the early stage of atrophic cirrhosis or of fatty cirrhosis of the liver; but rarely is it, as often imagined, hypertrophic cirrhosis, which is a very rare disease. By careful dietary treatment in the early stages of the affection, by a removal of the cause, such as alcohol or over-eating, the process may be delayed for a very great period of time. It is unfortunate that no visible evidences of the disease can be demonstrated to the patient, such as albumin and casts, which appear in the urine, showing an interstitial nephritis. When this does occur in the last-named disease, however, the patients are really frightened, and they then may mend their ways. We know that people may have enlarged livers without having any definite symptoms pointing to the trouble. I think it is up to the man of the future to make a diagnosis of cirrhosis of the liver before the circulatory and toxic symptoms make their appearance; then medical and perhaps surgical treatment will give different and better results.

DR. CHARLES A. HOOVER, Cleveland: I should like to report one case. This patient was under observation thirteen years ago at the City Hospital in Cleveland. The man was tapped I believe about fifteen times at the hospital. The resident physician was in the habit of doing the paracentesis. When he completed his service at the hospital he went to practice in a neighboring town. This man with the ascites liked the manner in which the retiring physician had done the work, and so followed him to the town in which he started to practice. The doctor was in the habit of doing the operation once in about five days. One morning the patient with distended belly visited the physician in his office and requested a paracentesis. The doctor was busy at the time and said he would tap him that afternoon. But at noon the patient had a profuse hemorrhage from the bowels, losing great quantities of blood. Two hours after losing so much blood the man was very blanched; when the doctor arrived a friend of the patient was at the bedside, who said: "From my observation it seems strange to see him so bloodless, and yet he appears to have such a good pulse." The man died from anemia that same night. An autopsy was performed on the following day and the abdomen was found to be dry; every bit of the serum had been absorbed. Judging from the repeated tappings that had been done, not less than five liters of serum had been taken up. There was absolutely nothing here excepting the usual venous anastomoses and the lowered intravascular pressure to enter into the rapid absorption of fluid.

DR. SAMUEL E. MUNSON, Springfield, Ill.: Dr. Hoover's report of his case reminds me of a man, 60 years old, who had hepatic cirrhosis accompanied by tabes dorsalis, and who developed dropsy. For a period of almost one year I performed paracentesis about every seven or ten days. Sometimes I removed as much as six gallons of fluid. After a period of time following these tappings, the fluid disappeared and did not recur again. This man lived two or three years afterward. Death was due to tabes dorsalis.

DR. JOSEPH L. MILLER, Chicago: I have seen two cases of so-called cirrhosis of the liver cured after a few tappings. In one case it was found that the patient was suffering from tuberculous peritonitis. The second patient was supposed to be cured, but returned in a few months with a tuberculous peritonitis. It is my opinion that some of these cases of so-called cirrhosis of the liver reported cured by tapping are really cases of tuberculous peritonitis.

DR. GEORGE DOCK, New Orleans: It is very important to remember that ascites and cirrhosis of the liver do not mean the same thing; there may be cirrhosis of the liver without ascites. In any case we must not suppose that the ascites is the result of cirrhosis of the liver; this does not always follow. Many cases are diagnosed as cirrhosis of the liver and reported as cured by operation, or cured after repeated tappings, that are found afterward to be cases of tuberculous peritonitis or some other form of peritonitis. The advantage of an operation, however, is that it enables one to make an accurate diagnosis. Dr. Hoover's report of his case is very interesting; but I would like to point out that often the ascites disappears without known cause and without treatment. I reported a case some years ago in which a patient was prepared for tapping to be done a few days later, and then there was nothing to tap for. The abdomen was flat and there were no signs of fluid in it. Two weeks later this patient died and no fluid was found in the abdomen. There was a secondary cancer of the peritoneum. With regard to whether the operation does any good in these cases, that is something I know no more about than anyone else. But the results of the operation, such as reported by Dr. Potter and others, and the results published in the literature, shown by improvement and sometimes recovery, we cannot get around. For a certain period of time there is no doubt that in some cases good results follow the operation. Dr. Rolleston's idea is that improvement in the circulation followed such an operation, thus enabling the patient to withstand the disease longer than he otherwise could. Talma discovered on the autopsy table that in those cases which pursued a favorable course in cirrhosis of the liver, new vessels had spontaneously formed which were capable of carrying on a collateral circulation. I have seen such a condition in a patient operated on a second time by Dr. Roswell Park. The vessels were enormously developed. I think that the major part of the benefit of the operation comes from changing the process in the peritoneum. Whether there is such a change as occurs in Bier's hyperemia treatment, I do not know; but the hyperemia may be an important part. In patients having a great deal of ascites and without much change in the liver, I should prefer having the operation done. My colleague, Dr. Matas, is now looking for a patient on whom he can make a direct anastomosis of the abdominal veins and send the blood around the liver. Such an operation as he proposes promises a great deal.

THE EPIDEMIC OF SPINAL DISEASE IN NEBRASKA

GEORGE P. SHIDLER, M.D.
YORK, NEB.

It is the purpose of this paper, in order to answer many of the questions asked in letters from physicians over this and neighboring states, to chronicle a few interesting facts relative to the epidemic of spinal disease now prevalent in Nebraska and variously diagnosed as cerebrospinal meningitis, acute anterior poliomyelitis, myelitis and meningitis.

The recognition of the epidemic in new neighborhoods is important, first, on account of its infectiousness and contagiousness and the consequent necessity of early and immediate quarantine; second, because of the relatively high fatality and the question of the possibility of using Flexner's serum; and, third, because new and interesting facts concerning poliomyelitis and meningitis of epidemic variety may show the necessity of disregarding at times the things we have been taught in favor of unmistakable clinical evidence to the contrary.

BEGINNING OF EPIDEMIC

About July 4 an epidemic of spinal disease of some sort was recognized in and about Stromsburg, Neb.

The malady seemed confined, in the main, to children under 10, many of whom showed unmistakable meningeal symptoms.

There was a consultation of physicians on several cases, and the diagnosis of acute poliomyelitis made in one case and cerebrospinal meningitis in several others. According to most common text-books and authorities, neither disease was quarantinable. There was a Fourth-of-July celebration with excursions from the surrounding towns and counties. By July 15 many cases began to be reported from the neighboring towns and country. By July 20 one physician alone reported having had over one hundred cases. About this time the State Board of Health met in special session, and on account of the rapid spread of the disease ordered a three weeks' quarantine of all but the bread-winners of the affected families. In another ten days it had reached York, twenty-five miles away, whence it has spread over the entire state. The quarantine was then made absolute.

The following are illustrations of the manner in which the disease spread:

A woman from York had taken her child with her to the wedding of a sister at Stromsburg, about the Fourth of July, in a house where a younger sister had had the disease and was yet partially paralyzed in the lower limbs. The woman returned to York, and in nine days another of her children, a boy of 5, came down with a fever lasting three days. It was diagnosed as rheumatism. The fever fell by crisis and the boy's left leg became partially paralyzed. This was the first case in York. Next door there lived a family of six children. They began to have, one after another, slight fevers and developed similar symptoms. One had a partial paralysis of a leg, one of an arm and one of both legs; three had common symptoms, but no paralysis. A washerwoman brought her baby, allowing it to romp and play with these children while she worked. In five days it became ill, developed meningeal symptoms and died three days later with bulbar paralysis. Another child, a block east, contracted the disease, had paralysis of both legs and arms and, after two weeks of painless lingering, developed bulbar symptoms and died. At this time quarantine was established in York, and the malady checked. Later it was brought into the city again from outside, and again mastered by a strict quarantine.

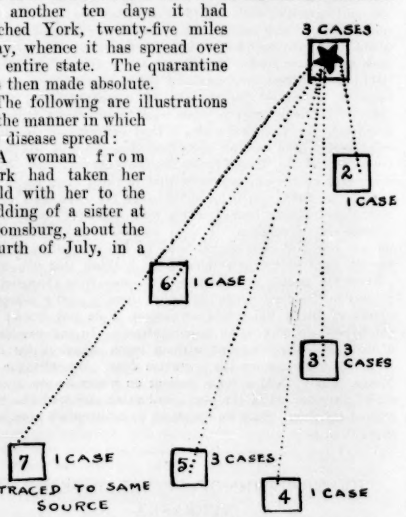

Fig. 1.—Diagram of course of infection among the members of a threshing crew near Benedict. Star indicates the house which was the source of infection in these cases.

Figure 1 shows diagrammatically the development of the disease near Benedict, Neb. At the house marked by a star there were three patients, one a nursing baby a year and three months old, one a girl of 12 years and a lad about 19 years old. The baby recovered from a slight paralysis of the arm. The girl, who had paralysis of both legs and arms and could not turn in bed, has recovered the use of her arms, but has contractures of flexors of the legs which prevent her from standing or walking. The lad suffered only a slight indisposition for several days in the way of general aches, pains and stiffness of neck with a low temperature. He worked during this time. About fifteen rods from this house stands another farmhouse. A young fellow, a chum of the first, lives here. He developed the disease like the others with no visible paralysis. Both of the young men were on a threshing crew exchanging labor with seven other men ranging in age from 15 to 30. These men drank out of the same jug, worked hard in the hot sun together, ate at the same table and developed the disease, one after the other. One of the young men, aged 18, died. There were two 30 years of age infected.

The disease spread from Benedict to Marquette and elsewhere in the following manner:

A child came into Benedict from near Polk, Neb., and was taken ill; it returned to the country, where the case was diagnosed as epidemic spinal disease. The 12-year-old daughter of the family next had the malady at home. Several weeks later the son-in-law of the parents of the affected children came from Marquette, Neb., with his infant son and visited over night. In five days the infant came down with the disease, this being the first case in Marquette. A child of another family came in from the country to the house of the above-mentioned family in Benedict about a month later, not having been allowed by its parents to see any other child all summer. She stayed one night at this house, returning home in the morning. In five days, that is, on the first day of school, she became ill, and after three days' fever developed a paraplegia of both legs.

In another instance, occurring in York, Neb., at place marked by a star (Fig. 2), a boy, aged 8, developed what were diagnosed as typhoid symptoms—coated tongue, stair-step rise with higher evening temperatures and several days of prodromal malaise. The case was reported by neighbors and quarantined after child had developed paralysis of both legs. Before this, however, there had been a general exposure of the neighborhood. A child came to visit next door, at house marked 2, looked at some fish in front of the house with the sick child, next day went out in the country fourteen miles and in due time developed double leg paralysis after four days' temperature. The first child recovered after three weeks; the second child recovered the use of one leg after five weeks; the other leg developed atrophy with no electrical reaction and with a quadriceps femoris and tibialis anticus paralysis. The child hobbles about without aid of crutch or cane. On the other side, at house marked 3, 18-months-old boy had a fever for two days with partial paralysis of one leg and later complete recovery. Across the street, at 4, another infant, 16 months old, at the breast, developed paralysis of left leg. The parents attributed fever of one day's duration to teething. At 5 another infant became ill and after paralysis of several weeks developed a hypostatic pneumonia and

died. These cases were all in a thickly settled Russian neighborhood. The children who were affected later had been with the first child when he had had his fever.

And so I might relate series after series of cases to prove that this epidemic should be quarantined, that it is infectious and probably contagious. One physician reports fourteen cases in which the infection was traced in every case. One physician reports that his two children had the disease. One child recovered; the other has yet a paralysis of one leg. I have emphasized this at the length I have because there is nothing said about quarantine in the common text-book, and it is the most important measure we have at our command to defend our children.

DESCRIPTION OF THE EPIDEMIC

Sixty cases have been chosen in a series as they came and studied. They are used throughout except in "Number of Cases in a Family," where purposely ten extra single cases occurring in families of more than one child were added to forestall the argument that, because single cases happened so often in families of more than one child, the disease was not contagious or infectious and, therefore, should not be quarantined.

Period of Incubation.—This could not be determined in many cases; in several cases it was five days; in several, eleven to thirteen days, probably depending in large part on the susceptibility of the patient, the resistance to infection and the virulence of the infecting organism, all unknown quantities.

Age.—It will be noted from the tabulated statement below that 25 per cent. of the patients in the series are under 3 and 20 per cent. over 10 years of age. The last fifteen cases in the county, which are not included in this series, are of a much higher age throughout.

Age. Years.	No. Cases.	Age. Years.	No. Cases.
Under 1	9	7 to 8	5
1 to 2	2	8 to 9	4
2 to 3	7	9 to 10	4
3 to 4	4	10 to 15	6
4 to 5	4	15 to 20	5
5 to 6	5	20 to 30	4
6 to 7	1		

Sex.—Twenty-nine patients are females and thirty-one males.

Time of Year.—All these cases have occurred in July, August and September.

Number of Cases in Family.—Thirty-one per cent. of these cases occurred as single cases in families having more than one child. Forty-four per cent. occurred in families in which there were two or more children, all of whom acquired the disease. Four per cent. occurred in families where there was a single child. Sixty-four per cent. of the cases occurred in families where there was more than a single child in the family.

Single cases in family of one child	3
Single case in family of more than one child	22
Two cases in family of two children	6
Two cases in family of more than two children	6
Three cases in family of three children	15
Four cases in family of four children	4
Four cases in family of five children	4
Four cases in family of six children	4
Six cases in a family of six children	6

Previous Health.—Most of those afflicted have been in fine health previously—are fat country children, having had the benefit of plenty of sunshine and fresh air.

Sanitation.—In large families where hygiene and sanitation are disregarded there seemed to be a slight tendency for more of the members to be affected. Most of the patients, however, had clean, well-kept homes.

Various Factors.—Teething seemed to have no effect on acquiring the disease. Injuries do not predispose. Overwork seemed to be a factor, especially in the cases of the young men who threshed in the hot sun.

Symptoms.—Temperature: The onset is usually sudden. The child is noticed to have a fever of varying heights, usually moderate, and to feel suddenly tired with a change of disposition; refusing to play or eat, although in very few cases the restlessness at night or pain on movement is the first thing to attract attention. Once the initial symptom of a 10-year-old girl was an inability to see down a post hole when she stood close to it, because of the stiffness of the neck muscles. Occasionally the parents notice that for several days the child has not seemed natural. In several cases there was no fever noticed—nothing unusual until the child limped or could not walk or raise its arm. Only once was there an initial chill reported. The temperature seems to be higher in smaller children and in fatal cases, although in one fatal case there was a temperature of 101 F. for twenty-four hours preceding death. As a rule early severe symptoms give a higher temperature. As to the duration of the fever, two-, three- and four-day temperatures seem to be the rule, falling in twenty-four hours by crisis.

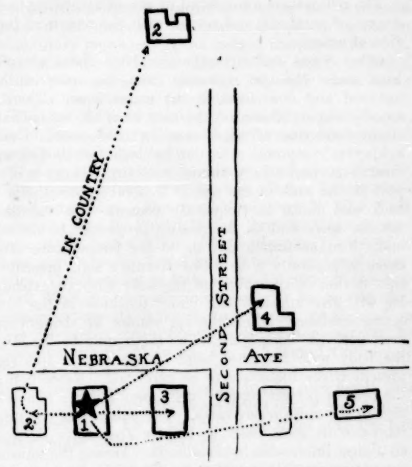

Fig. 2.—Map showing course of infection in York, Neb. Star indicates house where disease first developed.

Duration.	No. Cases.	Duration.	No. Cases.
1 day	7	4 days	14
2 days	16	5 days	7
3 days	14	6 days	2

There has been in lingering cases a secondary rise due to other causes, in three cases to pneumonia. These should not be confused with the original infection temperature.

Condition of Bowels: Diarrhea may be present, but constipation is the rule. Occasionally nothing has attracted attention to the bowels. In a few cases there was vomiting, but that was the exception, surely not the rule.

Paralysis: The worst paralyses have occurred in children from 8 to 12 years of age when the disease has not proved fatal. The localization is tabulated as follows:

No paralysis	10
Incoordination	11
Both legs	16
Right leg alone	2
Left leg alone	1
Supinators of arm	4
One arm and one leg (same side)	2
Both arms and both legs	6
Deltoid and pectorals	2
Deltoid alone	2
Intercostals	2
Abdominal muscles	2
Bulbar paralysis	6

It will be seen from this that in a large percentage of cases there was no paralysis and in another large class merely incoordination existed. These cases occurred in families where other members of the family had paralysis and the same infection was present. Both legs seem to be the most common paralysis, with both arms and both legs next in frequency. The paralysis is flaccid and only in three cases was there any spasticity noted in arms or legs other than the knee symptoms elicited by the Kernig manipulations. A Babinski was not always tried for, but was never found present when the test was made.

Reflexes: These are generally sharp or exaggerated during the fever; absent after the fever in paralytic cases.

The reflexes are diminished or absent according to the degree of paralysis, and return with the return of function of muscles.

Other Signs and Symptoms: Often there are pink lines under the eyes, running from the inner canthus outward and downward to the malar bone. There is usually some stiffness of the neck muscles, occasionally slight retraction of head, even in mild cases. Under subjective symptoms a basilar headache comes first and most important. It is almost constant. There is often pain in the back of the neck. General hyperesthesia of back and limbs is frequently present. In the more marked cases and as the disease progresses to the second, third or fourth day or to the temperature crisis there is generally a modified Kernig's sign present in that flexion of the thigh on the body with an extended leg will give unusual pain under the knee in the hamstring tendons. Often the leg cannot be straightened even with the back bent. The thigh may be flexed on the body with the knee bent. Especially is this sign present if the limbs are to be paralyzed. Retraction of the head or perfect rigidity of the neck muscles is noticeable in the more severe cases. The pain along the spine increases in some cases and there frequently develops an almost intolerable hyperesthesia. Among the unusual symptoms noted in over two hundred cases were strabismus once, opisthotonos several times, formication once, numbness once, photophobia once, sphincteric paralysis thrice, and bulbar paralysis.

Prognosis.—Recovery seems to be good in mild cases, improvement beginning in a few days to a week and recovery becoming established in three or four weeks. Most of the more seriously affected patients do not recover. There is usually a slight improvement, but finally atrophy of certain groups appears well marked, a grim reminder of the dreaded disease. The most frequent atrophy occurs in the deltoids, pectorals, quadratus femoris and tibialis anticus muscles. The number of deaths in this series was 7, or 11 per cent. Out of upward of 200 cases in York County there has been a mortality of over 7.5 per cent. The first cases about Stromsburg were not so frequently fatal. The last unincluded cases have had a higher rate of fatality.

Differential Diagnosis.—As to the differential diagnosis I shall mention some of the things encountered in this epidemic.

Trauma: Injuries ("fell against water-tank," "fell out of swing," "ran a tack in his foot") are insisted on by the parents to account for the leg symptoms. In mild cases the temperature alone will differentiate between the epidemic disease and trauma, provided the wound is not lacerated or infected. There is the location of the muscle paralysis and the probable injury to be investigated. Chance for infection will sometimes aid.

Tonsillitis: Three times cases were diagnosed as tonsillitis because the pharynx and tonsils were red and swollen and a general soreness, fever and slight stiffness of the neck present. A high polymorphonuclear leucocytosis would favor tonsillitis. A tonsillar history might be a deciding factor. Later when the fever falls and the paralysis supervenes the diagnosis is cleared up.

Typhoid Fever: The differential diagnosis between typhoid and the spinal epidemic should offer no serious difficulties, because of the rapid onset, earlier time of year, negative Widal, longer duration of disease, early fall of temperature by crisis, absence of rose spots, no bronchitis, good appetite after subsidence of fever, and paralysis.

Colds, Commonly Called Grip: These, as a rule, lack the nervous symptoms, rigid neck and history of infection. They come on after exposure in cold, damp weather, and more often in older people. In grip there is no modified Kernig and no paralysis.

Rheumatism: The facts that in rheumatism there is usually a history of previous attacks and joint involvement with redness and swelling, but no muscular paralysis in children, and that salicylates are efficacious, would be sufficient to differentiate. The presence in both conditions of swollen tonsils and joint pain and general tenderness calls for careful diagnosis. In all these cases the presence of organisms of any sort in the spinal fluid would be a deciding point.

Diphtheria: This might call for a differential diagnosis in the paralytic stage. The history would clear up the diagnosis in most cases.

Nature of the Epidemic.—A transverse myelitis or a multiple neuritis would hardly be seriously thought of. The final diagnosis resolves itself into acute anterior poliomyelitis, meningitis or cerebrospinal meningitis. I have made fourteen lumbar punctures. Specimens were withdrawn according to the technic of von Quincke. Later centrifuge, microscope and stains were taken to the homes. Only one sterile fluid was obtained, and in that case the puncture was done four weeks after the temperature had subsided. Wright's stain was used for all smears. In nine cases what appeared to me to be a Gram-positive coccus was obtained and in three a diplococcus, but never intracellular. The fluid was clear as water in every case but one. This fluid was slightly turbid and showed the only polymorphonuclear leucocytosis. In fact, the others showed a lymphocytosis. In three cases the tension was notably increased, the fluid spurting in a stream from the needle, showing a meningitis. Cultures were made, but the possibility of contamination in transit prevented exact conclusions. Animal experimentation and more careful bacteriological work, I hope, will clear up the organism.

The clear spinal fluid, the comparative rarity of cerebral symptoms and the relatively low death-rate almost completely banish, to my mind, the diagnosis of cerebrospinal meningitis caused by the *Diplococcus intracellularis meningitidis* and, therefore, the possibility of using Flexner's serum in therapeutics. The possibility of its

occurrence, even in the midst of an epidemic of something else, should not be forgotten, however.

To be sure, there are in this disease meningeal symptoms, but nothing that a simple meningitis caused by some unknown organism could not explain. The fact that in every acute case organisms have been obtained shows that there are bacterial toxins to produce degeneration of the cord and to inflame the cord membranes. Is it not a logical and scientific hypothesis that in this disease the simple meningitis and the poliomyelitis may be caused by the same thing, and that sometimes the infection of the meninges may predominate and at other times the infection of the gray substance of the cord? The mortality is too high for poliomyelitis of the commoner text-books. The percentage of recoveries without atrophy is not according to text-book description. But could we not find organisms differing from all those in the past epidemics if not in kind, in characteristics, which would produce an anterior poliomyelitis and a meningitis? Is it not natural to suppose that in most cases, on account of the blood-supply and the proximity of the membranes to the cord substance, the two infections go hand in hand and that, while poliomyelitis may leave the predominating lesion usually, at any time it would be possible for the meningeal symptoms to appear uppermost?

I wish to thank the doctors of York County who have kindly cooperated in studying this epidemic.

106½ East Sixth Street.

JONNESCO'S ANALGESIA METHOD

JOHN J. MOORHEAD, M.D.

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NEW YORK

By reference to Jonnesco's article,[1] "Remarks on General Spinal Analgesia," it appears that he first advocated this method before the International Society of Surgery, in Brussels, September, 1908, when he reported fourteen cases "by my new method . . . " (addition of strychnin to stovain). At the German Society of Surgery, in Berlin, April, 1909, Professor Bier (Berlin) declared that the method must be rejected; and Professor Rehn (Frankfort), at the same meeting, stated that animal experiments demonstrated considerable danger in injections higher than the lumbar region.

In explanation of this hostility, Jonnesco says that, as he expected, the method would be considered ". . . too novel and too hardy to be accepted without opposition . . ." and he adjures his critics not to be condemnatory on *a priori* grounds, predicting that ". . . my new method of general spinal analgesia will in a short time be universally accepted. . . ." He adds that since October, 1908, he has used this method exclusively in his private and public operations, and he claims to have convinced Professor Schauta (Vienna) of its merits by personal demonstration.

The article then goes on to explain the method of preparing the strychnin sulphate and stovain, with the proper dosage according to the age and general physique of the patient. He advocates only two spinal zones for injection; namely, a "superior" (or "high") between the first and second dorsal vertebræ, and an "inferior" (or "low") between the twelfth dorsal and first lumbar vertebræ. The former, he claims, is efficient in producing analgesia of the upper part of the body, including the face, head and neck; while the latter permits operative manipulation on all parts approximately below the waistline, and is especially helpful in laparotomies because it produces what he terms "abdominal silence."

SOME STATISTICS

His total number of personal cases by the "new method" is 412; of these, 117 were high and 295 low injections.

After-effects were notably absent, he says; nausea being noted in 2.25 per cent.; vomiting ("a single effortless ejection") in 1.25 per cent.; sweating in 2 per cent.; headaches in 6.25 per cent.; transitory retention of urine in 4.5 per cent.; in no case did postoperative temperature reach 104. He never saw any paralysis.

The duration of analgesia in the high injections is about forty-five minutes; in the low, from an hour and a half to two hours. A second injection is given if the operation is not completed within the above periods. He relates cases in which at first he failed to produce the desired effect because he did not enter the arachnoid space in the mid-line; or because the patient made an involuntary movement at the instant the needle was felt, thus deflecting the latter. He, however, has never failed to produce analgesia, although in some cases many attempts are necessary (see below).

This article is illustrated by four large photographs, two of them showing Jonnesco performing his high and low injection, respectively.

During his visit to this country, and up to Dec. 29, 1909, Jonnesco says that he has effected twenty-three spinal analgesias. Eleven of these were in New York hospitals; five in Philadelphia; three in Chicago, and three at Rochester, Minn. (State Hospital). Seven of these were superior dorsal and sixteen low dorsal injections. Commenting on these cases in a letter to the *New York Medical Journal*, Jonnesco says he regrets that newspaper reports make it appear that he claimed to have discovered medullary narcosis; on the contrary, he disclaims any intent to rob Dr. J. Leonard Corning of this city of that honor. Neither does he claim to have discovered stovain or strychnin; but he does assert that his method of combining these drugs is new and original with him, as is his introduction of them into the two spinal zones already mentioned.

ANALYSIS OF AN UNFAVORABLE CASE

In this letter he explains the unfavorable outcome of the high injection given in Case 3 at the Post-Graduate Hospital (osteoma of left frontal region) on the theory that the patient was an epileptic and had a bad cardiac lesion; adding that ". . . Immediately after the operation began, he [the patient] had an epileptic fit which lasted throughout the whole operation. This should be enough to explain a momentary cessation of the respiration, but the heart never ceased beating and a few moments of artificial respiration were enough to bring him around again. The delirium which appeared after the operation is simply an epileptic delirium, and I cannot understand how anyone can think it was produced by the anesthetic. . . ."

This statement is in marked contrast to the report of the case as given[2] by Dr. Aspinwall Judd, who assisted Dr. Judd makes no mention of an epileptic fit which Dr. Robert T. Morris at the operation, and certainly it does not accord with my observations of the occurrence.

1. Brit. Med. Jour., Nov. 13, 1909, p. 1396.

2. New York Med. Jour., Dec. 25, 1909.

Dr. Judd makes no mention of an epileptic fit which began at the time of and lasted throughout the operation, nor did I witness any such incident. Respecting the "momentary cessation of respiration" it appears from Dr. Judd's report that the operation lasted twelve minutes and that respiration thereafter was very seriously interfered with, and that it required heroic treatment for twelve minutes before respiration was re-established. Those who observed the patient after he left the operating room would hardly agree with Jonnesco in terming the case one of "momentary cessation of respiration"; nor would he have any supporter in his statement that ". . . a few moments of artificial respiration was enough to bring him around again . . . ." This patient had a wild delirium an hour after, requiring a strait jacket for two hours, the delirium recurring at intervals until the following morning. Jonnesco says that this was an epileptic delirium and ". . . cannot understand how anyone can think it was produced by the anesthetic . . . ."

The consensus of opinion respecting this case was that the high injection was exceedingly dangerous, and that the analgesia was far from complete and was responsible for the almost fatal collapse of the patient.

A HISTORICAL SUMMARY

Spinal anesthesia was demonstrated by Corning of New York in 1885, but it was several years later before the method was tested surgically, and it was then abandoned as unsafe and uncertain not only as to the immediate but also to the later effects. Since then, especially with the advent of some widely heralded new local anesthetic, medullary narcosis for a time again becomes prominent; but, despite the advocacy of many surgeons in many lands, the method has never gained a strong or lasting following. Jonnesco is the most recent sponsor for this more than twenty-year-old "discovery," declaring that the addition of strychnin to stovain, novocain, the various eucains, alypin, tropococain, etc., robs these local anesthetics of their dangers and makes high or low invasion of the cord safe and reliable.

I witnessed the operations performed at the Post-Graduate Hospital of this city under spinal analgesia induced by Jonnesco, and also visited Chicago and Rochester, Minn., soon after the demonstrations were given in those cities. From personal observation and from conversations with surgeons of my own and the above-mentioned places a consensus of opinion was obtained that seems unanimous both as to the method and the means of inducing this form of anesthesia.

THE DANGERS OF HIGH ANALGESIA

Observers of Jonnesco's method condemn high spinal analgesia without exception, because of the known dangers of invasion of that section of the cord, even though a small needle and 1 c.c. of sterile solution are the only foreign bodies introduced. That this opinion is well founded seems proved by recalling that of the seven cases of high spinal analgesia demonstrated during Jonnesco's visit, four resulted unfavorably. One of these was the Post-Graduate case above mentioned; another at New York (superficial chest operation) caused so much pain that the patient asked for chloroform; in a third case Jonnesco was unable to obtain cerebrospinal fluid after repeated trials, but did succeed in withdrawing blood; ether was finally given. In a fourth case reported by Dr. Edward Martin of Philadelphia (amputation of breast) it appears that the patient ". . . narrowly escaped death. . . . Later ether had to be given to control the pain. . . ." Incidentally, Dr. Martin states that there has been one death and one case of partial paralysis in his city following spinal analgesia by imitators of Jonnesco.

THE DANGERS OF LOW ANALGESIA

Respecting low spinal puncture there appears to be some division of opinion as between those who would not advocate it under any circumstances and those who might employ it in the event of some contraindication to inhalation or local anesthesia.

THE DANGERS IN GENERAL SUMMED UP

In general, the cogent factors warranting hostile criticism of the method are:

1. Danger of interference with a highly organized section of the nervous system, considering the possibility of (a) puncture of blood vessels, leading to (b) spinal hemorrhage and areas of (c) spinal sclerosis or (d) syringomyelia later.

2. Uncertainty of reaching the arachnoid space and hence failure of analgesia.

3. Psychic shock incident to operations where patients are conscious and appreciative of the sights and sounds occasioned by the occurrence.

4. The advantages do not outweigh the dangers, known and unknown, in a yet insufficiently tried radical departure from older methods.

SPINAL ANALGESIA HAS A LIMITED FIELD

It is apparently the general opinion that spinal analgesia will always have a limited application that is best represented by emergency or battlefield operations; and that it will not be employed except for marked contraindications to either inhalation or local anesthesia.

We have had the opportunity of witnessing the demonstrations of an expert, but we were unconvinced that even with his considerable experience and enthusiastic advocacy we are warranted in recommending this method, even though so attractively and widely again offered to a willing but skeptical profession.

101 Manhattan Avenue.

BISMUTH SUBNITRATE GAUZE FOR USE IN THE NOSE

HAROLD HAYS, A.M., M.D.
NEW YORK

After submucous resection of the nasal septum, after inferior turbinectomies, etc., I have been using small strips of bismuth subnitrate gauze, prepared at the time of using by rubbing powdered bismuth subnitrate on gauze bandages, two inches wide and cut to the proper length. These strips were folded to a width of about one-half inch and the packing accomplished by placing one strip of gauze on the other.

Since Dr. Wiener's paper appeared[1] I have been using the bismuth gauze prepared according to his formula. The only objection I have found to Dr. Wiener's gauze is that, being packed in a crumpled condition in a glass tube, it cannot be laid out smoothly for use in the nose, when cut in small pieces.

In order to overcome this difficulty, I have had the gauze put up in a package of a different style, which is far more convenient for my use. The gauze is cut into small pieces, two and one-half inches square, after being immersed in the bismuth emulsion and dried. About fifty of these squares are packed in onion-skin paper, the ends of the paper being so folded that they can be easily lifted

1. Wiener, Solomon: The Use of Bismuth Gauze in Gynecologic Work, THE JOURNAL A. M. A., Oct. 23, 1909, liii, 1397.

up without too much handling. This package is put into a small square pasteboard box. The original paper package is sterilized by heat and then the final package is sterilized in formalin in the same manner as all packages of the kind are sterilized.

When one wishes to use the gauze, the onion-skin paper can be lifted off from it and one or a number of pieces can be taken out with a sterile forceps. The pieces underneath are not touched and therefore can be left for later use. I am now having packages made containing twenty, fifty, and one hundred pieces.

11 West Ninety-first Street.

A CASE OF TRAUMATIC FRONTAL SINUSITIS

OPERATION; A CURE DUE IN PART TO THE INJECTION OF BISMUTH PASTE; PRACTICALLY NO DEFORMITY

F. PHINIZY CALHOUN, AB., M.D.
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There are always two important facts to be considered in any radical operation on the frontal sinus: first, deformity frequently follows the operation; and, second, the operation does not always effect a cure.

The case I report is one in which both of the bad results just mentioned have been avoided, and I attribute the cure to two injections of bismuth paste into the cavity.

History.—The patient, a healthy, robust-looking man, aged 41, consulted me May 23, 1908, on account of a continuous headache. He had consulted several oculists in neighboring cities for the same trouble, and glasses had been prescribed in each case. His headaches, restlessness at night and loss of appetite increased to such an extent during the few weeks prior to his visit to Atlanta that he had been referred by one doctor to another, with the hope of finding relief, and the patient stated that his trouble had been frequently diagnosed as incipient insanity and brain abscess. The patient attributed his present trouble to a blow which he received on March 27, 1907, while walking through the railroad yard of a neighboring city on a tour of inspection, when a heavy door of a refrigerator car suddenly swung open and the edge struck him on his right temple. He was knocked unconscious for a few hours and was confined to his bed for several weeks. After that time the headache increased in severity. March 19, 1908, two months before consulting me, a supposed polypus was removed from his right nose. There had never been a discharge from his nose.

Examination.—This showed a decided roughening of the right frontal eminence, over which there was a small scar in the skin, evidently from an old lacerated wound. On palpation there was tenderness, especially when pressing upward beneath the supraorbital ridge. There was a marked deviation of the nasal septum, high up, pressing against the middle turbinal body, the anterior end of which had been removed. This operation undoubtedly is what the patient thought to be the removal of a polypus. It was impossible to probe the nasofrontal duct. On transillumination there was a distinct shadow over the right side which might have been due to this bony thickening. An anterior skiagraph revealed a distinct difference in the two sides. This difference also might have been due to this bony thickening. A lateral view showed a very large sinus, and compared to a picture of the left side, the difference was marked. The patient's temperature, taken twice, morning and afternoon of the first day's examination, was a degree above normal.

Operation.—I was not sure, from my examination, that the patient had a purulent sinusitis, although I was so convinced that there was something wrong that I advised an operation, exploratory, if necessary, and the patient readily consented. He was placed in the Wesley Memorial Hospital, May 26, 1908, and operated on the same day. My incision was along the upper margin of the right brow, extending down into the lateral side of the nose. The skin and periosteum were retracted and a small groove was made above the supraorbital ridge, when there flowed out a quantity of thick, yellow odorless pus, apparently under pressure. Most of the entire external wall of the frontal sinus was removed and the cavity was thoroughly curetted. The ethmoid cells were explored and found healthy. The nasofrontal duct was enlarged and gauze passed through it into the nose. The wound was packed lightly with iodoform gauze, and except for a slight drain at the inner angle of the skin wound, it was closed entirely.

Postoperative History.—On the fourth day the gauze in the cavity was removed through the nose, under gas anesthesia, and I considered it best and safest to pack the wound open through the brow incision. The wound was dressed daily for a while, then every other day until healing took place, nearly fourteen weeks after the operation. Two months later he returned with some puffiness over the scar, and with a probe a long sinus leading high up was discovered, out of which oozed a quantity of mucopurulent discharge. My colleague, Dr. C. R. Andrews, suggested the injection of bismuth paste into the cavity, as he had used it rather extensively in his orthopedic practice. It required but two injections, at intervals of four days, of the following formula to bring about a permanent cure:

Bismuth subnitrate	30 parts
Paraffin, melt at 120	10 parts
White wax	10 parts
Petrolatum	50 parts

More than a year has now elapsed with no evidence of a discharge, and the patient has been absolutely free from headache since the day following the operation. The cavity filled almost completely and the deformity is practically not noticeable. The cause of the infection was undoubtedly the compound fracture of the external wall of the right frontal sinus. An intracranial infection would have taken place eventually, as the external table was unusually thickened.

833 Candler Building.

APPLICATION OF A SPLINT FOR FRACTURED ULNA

PENN-GASKELL SKILLERN, JR., M.D.
PHILADELPHIA

I recently encountered a case of fracture of the ulna in which a new application of an old method seemed indicated. The solution of continuity occurred in the lower third of the shaft of the left ulna. The deformity, caused as usual by direct violence, was that the inferior fragment was driven outward, thereby encroaching on the interosseous space. Reduction by manipulation was evidently to be maintained by overabduction of the hand. Just so is overadduction aimed at in Colles' fracture.

How could the hand be secured in this position? The simplest method seemed to be to apply a Bond splint in reverse. The patient was furnished with a right-handed splint and instructed to grasp the semicylindrical block with his hand. The shaft of the splint, being free, formed an acute angle with the radial border of the pronated forearm. The hand was secured to the block by adhesive strips applied so as to describe an ellipse between the posterior surface of the bases of the metacarpals and the under surface of the distal end of the splint. The next manipulation accomplished with surprising satisfaction the result desired. The acute angle between the shaft of the splint and the forearm was obliterated by pushing the splint toward the forearm until it paralleled the latter. This of necessity forced the hand, bound to the block, over toward the radial side, in overabduction. The result was that the lower fragment of the ulna was drawn away from the radius as far as the interosseous ligament would permit, and thus the perfect coaptation of the fragments was obtained.

A very pertinent reference to this fracture is the following:[1]

Great care is necessary in the treatment of this fracture, lest the upper end of the lower fragment retains the vicious position into which it is forced at the time of the accident, and so is ultimately soldered to the inner margin of the radius. To prevent this occurrence the hand should be permanently inclined toward the thumb by two splints, the extremities of which are rendered somewhat sloping from behind forward, in a direction opposite to that of the splints sometimes employed in the management of fracture of the corresponding end of the radius.

The principle, therefore, is an old one, but I think that it merits reconsideration, and that the single splint applied as described exactly meets the indications. It should be added that the leather side-pieces with which these splints are usually equipped were absent, since I was not convinced that they serve any practical purpose. Anyone may satisfy himself of the efficiency of this method by manipulating a splint in the manner indicated.

241 South Thirteenth Street.

ARTIFICIAL INCREASE OF EOSINOPHILE CELLS IN DEMENTIA PRÆCOX

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Several months ago in an article[2] by Dr. H. D. Purdum and myself, we mentioned the increase in eosinophile cells in the blood, which is often seen in dementia præcox, and also mentioned two cases in which we succeeded in raising the percentage of eosinophiles by administration of thyreoidectin.

Since that time I have been testing the effect of thyreoidectin on the blood of cases of dementia præcox. The original idea for administering the drug was based on the theory that the disease was possibly caused by perverted secretion of the thyroid gland. Recently several cases of catatonia have been reported as having been cured or improved by partial extirpation of the thyroid gland. It was for this reason that it was thought that thyreoidectin might exercise the same influence on dementia præcox. No improvement in any of the cases was noted, but it was observed that certain changes in the blood took place in most of the cases, which were characteristic.

The blood of ten cases of dementia præcox was examined at intervals of a few days during the administration of the drug. Five cases of catatonia and five cases of hebephrenia were taken at random. One case of epileptic insanity, one case of manic depressive insanity, one case of general paresis and a normal individual were also tested.

The following tables show the blood changes in the cases of dementia præcox:

CASE 1

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	10,660	15.4	61.7
May 5, after 40 grs. thyreoidectin	13,706	20.0	57.6
May 7, 5 grs. t.i.d.	14,594	18.5	53.9
May 12, 5 grs. t.i.d.	14,340	25.1	45.6
May 15, 10 grs. t.i.d.	14,088	28.1	40.0
May 17, 10 grs. t.i.d.	not obtainable	27.8	49.6
May 20, 10 grs. t.i.d.	not obtainable	32.3	40.3
May 23, drug discontinued	8,376	22.0	45.9
June 4, drug discontinued	not obtainable	13.4	53.5
June 15, drug discontinued	not obtainable	7.8	51.9

CASE 2

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	6,592	6.0	61.4
May 7, after 55 grs. thyreoidectin	13,452	10.8	53.1
May 9, 15 grs. t.i.d.	11,042	6.3	50.8
May 13, 15 grs. t.i.d.	8,884	14.2	49.6
May 26, drug discontinued	5,692	15.4	40.3
May 30, drug discontinued	8,756	9.6	62.5
June 1, drug discontinued	7,482	8.3	37.4
June 5, drug discontinued	6,996	12.4	48.2
June 15, drug discontinued	8,122	6.1	47.0
June 22, drug discontinued	9,010	5.7	53.4

CASE 3

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	13,326	5.8	61.3
May 25, after 35 grs. thyreoidectin	14,594	10.4	51.9
May 28, 5 grs. t.i.d.	13,580	11.1	48.9
May 30, 5 grs. t.i.d.	14,340	12.3	45.3
June 1, 5 grs. t.i.d.	13,706	11.2	51.4
June 4, 10 grs. t.i.d.	12,944	9.0	50.3
June 6, 10 grs. t.i.d.	not obtainable	9.2	47.0

CASE 4

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,548	3.4	71.7
June 2, after 30 grs. thyreoidectin	8,248	5.1	56.0
June 4, 10 grs. t.i.d.	9,264	5.1	56.1
June 6, 10 grs. t.i.d.	8,248	3.4	62.7

CASE 5

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,042	0.7	78.4
June 1, after 30 grs. thyreoidectin	9,518	4.6	62.2
June 4, 5 grs. t.i.d.	10,914	7.6	60.0
June 8, 5 grs. t.i.d.	11,802	5.0	67.8

CASE 6

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	13,072	3.5	70.5
June 10, after 20 grs. thyreoidectin	8,122	1.2	73.0
June 12, 5 grs. t.i.d.	10,534	1.1	70.0
June 14, 5 grs. t.i.d.	8,884	3.0	72.1

CASE 7

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,422	6.0	45.8
June 17, after 25 grs. thyreoidectin	8,755	7.1	45.5
June 19, 5 grs. t.i.d.	8,884	10.5	43.4
June 21, 5 grs. t.i.d.	9,392	8.4	48.0

CASE 8

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	18,404	1.3	57.1
June 18, after 30 grs. thyreoidectin	13,960	2.6	56.1
June 20, 10 grs. t.i.d.	13,580	3.1	55.1
June 22, 10 grs. t.i.d.	14,722	3.2	55.0

CASE 9

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	9,392	1.2	67.8
Oct. 12, after 15 grs. thyreoidectin	10,660	1.7	70.2
Oct. 13, 15 grs. t.i.d.	9,898	1.4	76.0
Oct. 14, 15 grs. t.i.d.	10,888	2.4	63.6

CASE 10

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	8,168	2.0	64.8
Nov. 28, after 35 grs. thyreoidectin	5,552	4.2	59.6
Dec. 1, 15 grs. t.i.d.	6,340	3.0	61.2
Dec. 3, 15 grs. t.i.d.	6,214	5.4	49.0

In making the differential counts in these cases, at least 500 white blood cells were counted and often a thousand. They were all counted by one person. Wright's blood stain was used.

The most notable variations in the blood are the increase in the eosinophile cells in 90 per cent. of the cases and the decrease in the neutrophiles, the latter, as a rule, showing a greater decrease in proportion than the rise in eosinophiles. Case 6 is the only one in the series in which there was no rise in the eosinophiles. It

1. Gross: System of Surgery, Edition 6, i, 965.
2. THE JOURNAL A. M. A., July 4, 1908.

is also noticeable that there was very little variation in the neutrophiles in this case. This patient is one who has suffered from hebephrenia for many years, but who does not show many active symptoms and lived outside of the institution for several years before admission. The rise in eosinophiles is apparently greater in those having originally a high eosinophile percentage, but most of those having a lower percentage originally show practically a doubling of the eosinophiles. The total number of leucocytes showed no constant variation, being increased in some cases and diminished in others.

It is noteworthy that the blood findings in the normal individual remained fairly constant:

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	6,720	4.7	60.3
May 17, after 30 grs. thyreoidectin	6,664	4.4	62.2
May 19, 5 grs. t.i.d.	5,692	5.6	60.0
May 22, 5 grs. t.i.d.	6,848	4.0	60.0

The other cases of insanity tested showed no rise in the eosinophiles and no notable changes in the neutrophile count nor in the total leucocyte count. From the small number of cases examined, it cannot be claimed that these changes in the blood are specific for dementia præcox, but from the experiments with other forms of alienation and with a normal individual it would seem that there must be some degree of specificity or an unstable condition of the blood in dementia præcox which produces these results. If this test proves to be specific, it could be used as a diagnostic procedure in cases which are not clear.

The etiology of dementia præcox is still obscure. Possibly many factors contribute to its causation. From the experiments with thyreoidectin it might be theorized that the disease is due to perverted function of the thyroid gland, for we know that at certain periods in the course of hebephrenia and catatonia the eosinophile cells are normally increased. If, therefore, thyreoidectin produces the same effects on the blood that is observed normally in many cases of hebephrenia and catatonia, it would seem rational to suppose that perverted thyroid secretion is one factor in the etiology of dementia præcox.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1909," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(Continued from page 132)

SERUMS AND VIRUSES*

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERIC GLOBULINS.—Antidiphtheric Serum or Diphtheria Antitoxin is an official preparation; for description see the U. S. Pharmacopeia, 8th decennial revision. The diphtheria antitoxin sold in interstate commerce in the United States and in the District of Columbia is required to conform to the standard established by the United States Public Health and Marine-Hospital Service. Some manufacturers mix serums of different strengths so as to secure a preparation containing approximately a definite number of units per c.c. Most of the firms also market a concentrated diphtheria antitoxin or antidiphtheric globulins prepared by the removal, by precipitation with neutral salts, of most of the constituents of the serum except that fraction of the globulins bearing antitoxic potency.

Inasmuch as the ordinary (not concentrated) serum antidiphtheric um is contained in the U. S. P., it is desirable that the term "U. S. P." be used in connection with this product (and only with this one) in order to avoid confusion with the globulin preparations.

The French, German and Spanish Pharmacopeias recognize both liquid and desiccated preparations.

H. M. Alexander & Co., Marietta, Pa.

Diphtheria Antitoxin. Only the antidiphtheric globulin is marketed; the antidiphtheric serum is concentrated and refined in accordance with recent improvements of the Gibson method. Marketed in syringes containing from 500 to 5,000 units.

Burroughs, Wellcome & Co., London, England, and New York City.

Diphtheria Antitoxin Serum. Serums of different values from a number of horses are mixed to yield a definite value (from 450 to 500 units per Cc.), also a high potency serum, 1 Cc. of which contains 1,000 units. Trikresol (0.3 per cent.) is added as a preservative. Marketed in hermetically-sealed vials containing 1,000 to 4,000 (Ehrlich-Behring) units; also a high potency serum containing from 1,000 to 10,000 units.

Cutter Laboratory, Berkeley, Cal.

Diphtheria Antitoxin. Marketed in syringes containing 4,000 units; also in bulbs. Diphtheria antitoxin globulin marketed in syringes containing 1,000 units.

Farbwerke, vorm. Meister, Lucius and Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York.)

Diphtheria Antitoxin "Behring;" imported into the United States only upon special order.

Department of Health, City of New York.

Refined and Concentrated Diphtheria Antitoxin (Globulin). The preparation is a solution of the globulins of the blood which are soluble in a saturated sodium chloride solution; this contains most of the antitoxin. Preserved with chloroform. Marketed in syringes containing from 2,000 to 5,000 units, each Cc. containing 800 to 1,500 units. Also in vials.

Wm. R. Hubbert, Detroit, Mich.

Diphtheric Antitoxin. Marketed only in bulk (usually from 1 to 10 liters).

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Diphtheria Antitoxin. Only antidiphtheric globulin is sold; this is marketed in syringes containing from 500 to 10,000 units each; also in vials containing from 1,000 to 5,000 units each. The latter are prepared more particularly for the use of Boards of Health.

Memorial Institute for Infectious Diseases, Chicago.

Antidiphtheritic Serum. Most of the antitoxin prepared is concentrated. Marketed in packages of from 1,000 to 5,000 units each, both in syringes ready for use and in bottles.

H. K. Mulford Co., Philadelphia.

Diphtheria Antitoxin, Concentrated (globulin). Prepared from serum antidiphthericum by the removal, by precipitation at 33⅓ per cent. saturation with ammonium sulphate, of the serum albumins and globulins. The product consists essentially of a soluble serum globulin freed from inorganic salts by dialysis and redissolved in physiological salt solution. Preserved with not more than ½ per cent. trikresol or not more than 1/10 to 1 per cent. chloroform. Marketed in syringes containing from 1,000 to 5,000 units.

National Vaccine and Antitoxin Institute, Washington, D. C.

Diphtheria Antitoxin, Concentrated; prepared according to Gibson's method. Preserved with chloroform. Marketed in syringes containing from 500 to 5,000 units.

Parke, Davis & Co., Detroit, Mich.

Antidiphtheric Serum, U. S. P.; preserved with 0.4 per cent. trikresol; marketed in piston syringe containers of from 500 to 5,000 units each.

Antidiphtheric Globulins. Marketed as above.

Antidiphtheric Globulins (dry). Marketed in packages of 3,000 units each. The dry powder is readily soluble in water and will keep indefinitely.

Frederick Stearns & Co., Detroit, Mich.

Diphtheric Antitoxin, U. S. P. Preserved with 0.4 per cent. trikresol. Marketed in syringe containers holding from 1,000 to 4,000 units.

Concentrated Diphtheric Antitoxin. Prepared by the Gibson process; preserved with chloroform (2.4 minims per fluid ounce). Marketed as above; also in syringes containing 5,000 units.

* Editor's Note: In this issue appears a symposium on serums, vaccines, tuberculins, etc., which was presented in the Section on Pharmacology and Therapeutics at Atlantic City, 1909.

ANTIDYSENTERIC SERUM.—

H. K. Mulford Co., Philadelphia, Pa.

Antidysenteric Serum. The blood serum of horses immunized against the Shiga bacillus. Recommended in dysentery and summer diarrheas where the bacillus of Shiga is an etiologic factor. Marketed in syringes containing 10 Cc. Dose 10 to 40 Cc. every four to eight hours; to be injected hypodermically.

ANTIGONOCOCCIC SERUM.—Favorable results have been reported from the use of antigonococcic serum in the treatment of chronic complications of gonorrhea involving serous cavities, especially the joints. The results in the case of the chronic stages and sequels of gonorrhea involving the genitourinary tract seem to be less favorable while it seems to have still less value in acute gonorrheal affections.

Parke, Davis & Co., Detroit, Mich.

Antigonococcic Serum, prepared from the blood of rams immunized against both dead and living cultures of virulent gonococci according to the method of Rogers and Torrey[1]. Marketed in bulbs containing 2 Cc. each.

Dosage. Two Cc. subcutaneously, to be repeated in 1 to 4 days.

ANTIMENINGOCOCCUS SERUM.—

Farbwerke, vorm. Meister, Lucius und Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York..

Meningococcus Serum "Hoechst." A serum prepared by the immunization of horses with virulent cultures of diplococcus intracellularis or its products according to Ruppel's method. Recommended as a diagnostic agent for distinguishing (by the agglutination test) the meningococcus from other diplococci and as a prophylactic and curative agent. It is injected subcutaneously or intralumbarly or in the dry form may be used as a dusting powder applied to the nasopharyngeal space or tonsils. Marketed in powder form mixed with 49.5 per cent. milk sugar and 0.5 per cent. alumnol, for use as a dusting powder; also in the dried form to be dissolved in 10 parts of water and injected subcutaneously or intralumbarly; also in the liquid form, preserved with 0.5 per cent. phenol (for agglutination tests).

Dose. 2.5 Gm. of the dried serum, dissolved in 25 Cc. water, subcutaneously to be followed, after lumbar puncture, by 10 to 15 Cc. or more, intralumbarly. In severe cases much larger amounts are recommended. 1 Gm. as a protective dose.

ANTIPNEUMOCOCCUS SERUM.—Antipneumococcus serum is the blood serum of horses immunized against pneumococci. Frequently both dead and living pneumococci are used.

Use.—It has been said to be useful in the treatment of pneumonia when injected subcutaneously. Hektoen, Weaver and Tunnicliff have recently examined the serums of this class found on the American market. They summarize their views as follows: "In the antipneumococcus serums it was impossible to demonstrate antibodies for pneumococci by any method employed."

"It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests."

H. K. Mulford Co., Philadelphia.

Antipneumococcic Serum, stated to be prepared by immunizing horses with both dead and living pneumococci. Marketed in syringes containing 20 Cc. Dose: 20 to 100 Cc.

Frederick Stearns & Co., Detroit, Mich.

Pneumolytic Serum, stated to be a composite polyvalent serum prepared by injecting horses with virulent pneumococci from various sources. The horses are first immunized with diphtheria toxin. Marketed in syringes containing 20 Cc. Dose: 10 to 20 Cc., to be repeated in 12 to 24 hours.

ANTISTAPHYLOCOCCUS SERUM.—

Burroughs, Wellcome & Co., New York.

Antistaphylococcus Serum is stated to be obtained from horses injected with killed cultures of staphylococcus pyogenes aureus, albus and citreus. Preserved with trikresol. Marketed in vials containing 25 to 50 Cc. Recommended in the treatment of various staphylococcus infections.

ANTISTREPTOCOCCUS SERUM.—Antistreptococcus serums are prepared by immunizing horses with virulent cultures of streptococci. Most manufacturers employ several strains of streptococci, thus obtaining polyvalent serums. In some cases humanized strains of streptococci are used; in others, cultures, the virulence of which has been much increased by passage through animals. In a few cases both human and animal strains are employed. Some manufacturers employ horses immunized against diphtheria, making the doubtful claim that such serum is especially active in stimulating leucocytosis and phagocytosis.

Actions and Uses.—Antistreptococcus serum has been claimed to be useful in the treatment of streptococcus infections such as erysipelas, scarlet fever, puerperal septicemia, tuberculosis (mixed infection), etc. It has also been used as a prophylactic prior to surgical operations, after labor, in scarlet fever epidemics, etc. Its value is doubtful.

Hektoen, Weaver and Tunnicliff recently examined the preparations found on the American market; in a preliminary report (1) they state: "Streptococcus opsonins could not be demonstrated in any of the serums tested, and activation by fresh serums was not accomplished to any significant degree. When they were injected into rabbits, increase in streptococcus opsonins could not be demonstrated in the animals' serums in any notable degree, except in some instances. Attempts to obtain protective and curative effects from the injection of antistreptococcus serums in rabbits, guinea pigs, and in a more limited scale in mice, met failure. The serums often seemed to reduce the natural resistance and to hasten death."

"It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests."

Antistreptococcus serum (liquid and desiccated) is recognized by the French pharmacopeia.

Burroughs, Wellcome & Co., London and New York.

Polyvalent Antistreptococcus Serum is stated to be obtained from horses injected with killed cultures of a number of strains of cases of erysipelas, scarlet fever, puerperal fever, rheumatism, septicemia, angina, pneumonia and ulcerative endocarditis.

Antistreptococcus Serum (Erysipelas) is stated to be obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of erysipelas.

Antistreptococcus Serum (Rheumatism) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of rheumatism.

Antistreptococcus Serum (Scarlatina) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of scarlet fever.

Antistreptococcus Serum (Puerperal Fever) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of puerperal fever.

All of the above are prepared with trikresol and are marketed in hermetically-sealed vials containing in most cases 25 to 50 Cc.

Cutter Laboratory, Berkeley, Cal.

Polyvalent Streptococcic Serum. stated to be prepared by the injection of many strains of living humanized cultures of streptococci into horses immunized with diphtheria toxin. Marketed in piston syringe containers, each containing 10 Cc. of serum.

Chemische Fabrik auf Actien (vorm. E. Schering), Berlin, Germany. (Schering & Glatz, New York.)

Aronson's Antistreptococcus Serum, stated to be a polyvalent serum obtained by inoculating horses with streptococci the virulence of which has been highly exalted by animal passage and with various humanized strains of streptococci. Preserved with 0.4 per cent. trikresol. Dose: 20 to 100 Cc., according to the severity of the case and the age of the patient.

Farbwerke, vorm. Meister, Lucius und Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York..

Antistreptococcic Serum, Hoechst, stated to be a polyvalent serum, prepared by immunizing horses against streptococcus cultures of the most varied origin and with highly virulent passage cultures according to the method of Meyer and Ruppel. Contains no artificial preservatives. Dosage: 1 to 10 Cc. for immunization. 2 to 25 Cc. for single curative dose. 3 to 50 Cc. for double curative dose.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Antistreptococcic Serum Polyvalent; marketed in 10 Cc. syringes. Dose: as a prophylactic, 10 Cc. curative, 20 to 100 Cc.

H. K. Mulford Co., Philadelphia.

Antistreptococcic Serum, stated to be the serum of horses which have been treated with streptococci of various strains. Marketed in 10 Cc. syringes. Dose: 20 to 80 Cc.

Parke, Davis & Co., Detroit, Mich.

Antistreptococcic Serum, stated to be a polyvalent serum; prepared by immunizing horses with killed cultures of streptococci; the latter are obtained from various human streptococcus infections and certain pathologic conditions common to animals. Preserved with trikresol. Marketed in 10 Cc. piston syringe containers, also in bulbs containing 10 Cc. each.

Frederick Stearns & Co., Detroit, Mich.

Streptolytic Serum, stated to be a composite and polyvalent serum; composite because it contains diphtheric antitoxin in addition to the streptococcus antibodies. Marketed in 10 Cc. syringes some of which have attachments for subcutaneous injection, others for rectal injection.

1. THE JOURNAL A. M. A., Sept. 14, 1907, xlix, 918.

ANTITUBERCLE SERUM.—
Parke, Davis & Co., Detroit, Mich.

Antituberele Serum. A serum prepared by treating horses for several months with the toxic products of the tubercle germs. Stated to be an experimental remedy claimed by some to give favorable results in tuberculosis. Marketed in 1, 2 and 4 Cc. bulbs and in 1 ounce bottles. Dose: 1 to 4 Cc. daily hypodermically.

ANTITYPHOID SERUM.—Antityphoid serum is a serum obtained from horses which have been injected with killed cultures of bacillus typhosus.

Actions and Uses.—Antityphoid serum has been employed in the treatment of typhoid fever, but the evidence as to its value is conflicting.

Burroughs, Wellcome & Co., London and New York.

Anti-typhoid Serum is stated to be obtained from horses injected with killed cultures of Bacillus typhosus. Marketed in hermetically-sealed vials containing 25 to 50 Cc.

TETANUS ANTITOXIN.—(Antitetanic Serum and Antitetanic Globulin).—Antitetanic Serum is the blood serum of horses immunized to the toxin of the tetanus bacillus. It is marketed in both liquid and dry forms. Some manufacturers prepare an Antitetanic Globulin; this contains a solution of the globulins of the blood, which are soluble in a saturated sodium chloride solution, together with the antitoxin, and contains the latter in concentrated form.

The antitetanic serum sold in interstate commerce in the United States should conform to the standard established by the United States Public Health and Marine-Hospital Service. This standard is defined as follows (Treasury Department Circular No. 61, Oct. 25, 1907; Bulletin 43, Hygienic Laboratory): "The immunity unit for measuring the strength of tetanus antitoxin shall be ten times the least quantity of antitetanic serum necessary to save the life of a 350-gram guinea pig for ninety-six hours against the official test dose of a standard toxin furnished by the Hygienic Laboratory of the Public Health and Marine-Hospital Service."

Uses.—Antitetanic serum is used both as a prophylactic and a curative agent in tetanus. The dried product may be used as a dusting powder.

Dose.—Immunizing, 1,500 units; in tetanus, 3,000 to 20,000 units every four to eight hours.

Serum Antitetanicum is official in the Belgian, French and Swiss Pharmacopeias. Both liquid and desiccated preparations are recognized by the French Pharmacopeia.

Department of Health, City of New York.

Antitetanic Globulin. Preserved with chloroform. Marketed in vials containing 1,500 units.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Only the concentrated antitoxin (globulin) is marketed; this is offered in syringes containing from 1,500 to 5,000 units each.

H. K. Mulford Co., Philadelphia, Pa.

Tetanus Antitoxin, marketed in syringes containing 1,500 units.

Parke, Davis & Co., Detroit, Mich.

Antitetanic Serum, marketed as follows:
1. In piston containers, 1,500 units.
2. In bulbs containing 1,500 units.
3. Dry.
4. Antitetanic Dusting Powder; the dried serum mixed with a small quantity of chloretone (chlorbutanol).

VACCINE VIRUS.—Vaccine virus is the material obtained from the skin eruptions of calves having vaccinia. The "pulp" is ground and mixed with varying percentages of glycerin. The latter has a certain degree of antiseptic action. It is usually marketed in capillary tubes or as glycerinated points. The serums which exude after the removal of the crusts have been used by some manufacturers for the preparation of "dry lymph points." These are generally regarded as unsatisfactory and the new federal regulations forbid interstate traffic in them after Jan. 1, 1910.

Some firms test the activity of their products on the cornea of rabbits and on calves.

Vaccine virus is official in the Belgian Pharmacopeia under the name "Vaccinum"; in the Swiss as "Virus Vaccinum."

H. M. Alexander & Co., Marietta, Pa.

Marketed as "glycerinated lymph" in capillary tubes; also as "glycerinated vaccine points" and as "dry points."

Cutter Laboratory, Berkeley, Cal.

Marketed in two forms; ivory points (dry) and in capillary tubes.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Glycerinated Vaccine Virus: (a) in glass capillary tubes and in bulk (for 10, 20 or 50 vaccinations); (b) upon Lederle's Protected Ivory Points; the latter are contained in capsule-like glass tubes which do not require breaking.

H. K. Mulford Co., Philadelphia.

Glycerinated Vaccine Lymph, in sealed capillary tubes. Glycerinated Glass Vaccine Points; glycerinated lymph on sterile glass points.

National Vaccine and Antitoxin Institute, Washington, D. C.

Glycerinated Vaccine Virus marketed in capillary tubes; Glycerinated Vaccine Virus on Ivory Points; special capsule.

Parke, Davis & Co., Detroit, Mich.

Glycerinated Vaccine: (a) in capillary tubes, (b) on ivory points. The points are contained in sealed glass tubes provided with Lee's breakable ring so that they may be opened without difficulty.

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BACTERIAL VACCINES

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Bacterial vaccines (cf. also tuberculin) are suspensions of the killed bacteria in physiologic salt solution; phenol (0.5 per cent.) is usually added as a preservative. Being suspensions, there is a tendency for the bacteria to settle on standing; hence the vial should be shaken before the syringe is filled and the latter should be shaken before injecting.

Pharmacopeial Preparation.—The French Pharmacopeia contains a "*Vaccin antipesteux*," consisting of a suspension of killed plague bacilli and a "*Vaccin antipesteux sensibilisé*," prepared by treating killed plague bacilli with antiplague serum. (Antiplague Serum is also official in the French Pharmacopeia.)

Actions and Uses.—The use of many of these vaccines is in the experimental stage. Bacterial vaccines are often prepared from cultures obtained from the individual to be treated (autogenous vaccines); these usually give the best results. In fact some authors maintain that "stock" vaccines should be used only when it is impracticable to secure the autogenous agent.

Bacterial vaccines are used to aid the production of an active immunity. Great care and skill are necessary for their proper use and no definite statements as to dosage, etc., can be given; the physician must be guided by the condition of the patient and the manner in which the latter reacts to the treatment.

The following were licensed to manufacture and sell in interstate commerce products of this character prior to July 15, 1909. (Cf. also Tuberculin).
Burroughs Wellcome & Co., London, England and New York City.
Lederle Antitoxin Laboratories, New York City.
H. K. Mulford Co., Philadelphia, Pa.
National Vaccine and Antitoxin Institute, Washington, D. C.
Parke, Davis & Co., Detroit, Mich.
Swiss Serum and Vaccine Institute, Berne, Switzerland.

The following products have been submitted to the Council:

Some of the licensed firms do not market stock vaccines, but prepare them only from cultures from patients.

BACILLUS COLI VACCINE.—Bacillus Coli Vaccine seems to cause distinct improvement in certain infections of the urinary tract, due to the colon bacillus. Pain and frequency of micturition are said to be quickly relieved, but complete elimination of the bacteria is stated to be rare. It has also been used in subacute and chronic appendicitis and in gall bladder fistulas where there was an infection with the colon bacillus.

H. K. Mulford Co., Philadelphia.

Coli-Bacterin. Marketed in 1 Cc. vials; each Cc. is said to contain approximately 50,000,000 killed bacilli suspended in normal salt solution.

BACILLUS PYOCYANEUS VACCINE.—This is said to be useful in local infections in which this organism is present. A recent writer states that he has never experienced the slightest beneficial effect either from the autogenous or stock vaccines prepared from this organism, and considers its use illogical.

H. K. Mulford Co., Philadelphia.

Pyocyano-Bacterin. Each Cc. is said to contain about 30,000,000 killed bacilli.

GONOCOCCUS VACCINE.—Gonococcus vaccine has been used with much success in subacute and chronic gonococcus infections involving the prostate, joints, eyes, etc. It has been stated that the strains of the gonococcus are not so diversified as are those of many other organisms and that therefore better results may be expected from stock vaccines of this organism than in many other cases.

Cutter Laboratory, Berkeley, Cal.

Gonococcic Vaccine. Marketed in 1 Cc. vials; each Cc. containing about 50,000,000 cocci suspended in physiological salt solution with 0.4 per cent. trikresol.

H. K. Mulford Co., Philadelphia.

Neisser Bacterin. Each Cc. is said to contain approximately 50,000,000 killed gonococci; preserved by 0.5 per cent. phenol.

National Vaccine and Antitoxin Institute, Washington, D. C.

Gonococcic Vaccine. Marketed in syringes each said to contain 2,000,000 to 50,000,000 bacteria; sterilized by heat.

Parke, Davis & Co., Detroit, Mich.

Gonococcus Vaccine. P., D. & Co. Marketed in bulbs each said to contain 20,000,000 bacteria; sterilized by heat.

MICROCOCCUS NEOFORMANS VACCINE.—Micrococcus neoformans vaccine is claimed to be beneficial in ulcerated tumors in which this organism occurs as a secondary infection.

H. K. Mulford Co., Philadelphia.

Neoformans-Bacterin. Each Cc. is said to contain approximately 50,000,000 killed neoformans micrococci.

PNEUMOCOCCUS VACCINE.—Pneumococcus vaccine has been claimed to be useful in pneumococcic infections. In laboratory experiments it was found inert so far as indicated by any change in the opsonic index when injected into rabbits.

H. K. Mulford Co., Philadelphia.

Pneumo-Bacterin. Each Cc. is said to contain about 50,000,000 killed pneumococci.

STAPHYLOCOCCUS VACCINES.—These have been used with much success in localized surface infections such as acne, acute boils, carbuncles and septic wounds, in multiple subcutaneous abscesses, sinuses, chronic osteomyelitis, etc. The best results are obtained with autogenous vaccines. Laboratory experiments have also shown that these vaccines possess distinct antigenic properties when tested by infections in rabbits with subsequent opsonin determinations.

Cutter Laboratory, Berkeley, Cal.

Staphylococcus Vaccine. Each Cc. contains about 500,000,000 cocci preserved with 0.4 per cent. trikresol.

H. K. Mulford Co., Philadelphia.

Staphylo-Bacterin. Each Cc. is said to contain about 300,000,000 killed staphylococci aurei.

Parke, Davis & Co., Detroit, Mich.

Four forms of vaccines are offered.
1. From staphylococcus pyogenes albus.
2. From staphylococcus pyogenes aureus.
3. From staphylococcus pyogenes citreus.
4. From the three preceding combined.
Each Cc. contains about 400,000,000 bacteria.

STREPTOCOCCUS VACCINE.—Recommended in various infections by streptococci (scarlet fever, puerperal septicemia, erysipelas, etc.).

H. K. Mulford Co., Philadelphia.

Strepto-bacterin. Each Cc. contains about 50,000,000 killed streptococci.

Parke, Davis & Co., Detroit, Mich.

Streptococcus Vaccine. Each Cc. contains about 40,000,000 streptococci pyogenes.

TYPHOID VACCINE.—Inoculations with typhoid vaccines have been practiced extensively in various armies; the results, both as regards the morbidity and the mortality from typhoid fever seem to have been distinctly favorable. Such inoculations have been recommended in institutions where many of the personnel are not infrequently exposed to typhoid infection and in communities threatened with or affected by typhoid epidemics. It has been suggested that typhoid vaccines may be of value in the treatment of typhoid carriers.

H. K. Mulford Co., Philadelphia.

Typho-bacterin. Each Cc. contains about 50,000,000 killed typhoid bacilli.

TUBERCULIN PREPARATIONS

Tuberculins represent the toxins of the tubercle bacillus. They may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacilli themselves. In the latter, or emulsified form, tuberculin is known as tubercle vaccine, and might be classed with the "Bacterial Vaccines" (which see). Tuberculins are therefore of two general classes:

1. Those prepared from the germ-free culture media, and containing for the most part only soluble products of the bacillus. This class includes Tuberculin "old" (or Tuberculin Koch) and Tuberculin Denys (Bouillon Filtré).

2. Those which contain the greater part of the germ body itself; they include the new tuberculins of Koch ("T. R." and the "New Tuberculin Koch [Bacillus emulsion]").

OLD TUBERCULIN, "O. T." (Tuberculin Originale, "T. O."; Tuberculin Koch).

Old Tuberculin is prepared by evaporating a 6 to 8 weeks' bouillon culture of tubercle bacilli at boiling temperature to 1/10 of its volume and filtration through clay or porcelain. A clear, syrupy, amber colored fluid; containing about 50 per cent. glycerin[1]. Frequently marketed in "serial dilutions" by which the doses may be gradually increased.

TUBERCULIN "DENYS" ("B. F."; Bouillon Filtrate; Bouillon Filtré, Denys).

This is the bouillon from cultures on which tubercle bacilli of the human type have grown to maturity (5 to 6 weeks) freed from germs by filtration through porcelain.

"NEW TUBERCULIN"—"T. R."—New Tuberculin represents a portion of the tubercle bacillus.

It is prepared as follows: A suspension of ground virulent tubercle bacilli is centrifugalized; the upper layer, consisting of extractives and fatty substances mixed with bacilli, is removed while other bacilli and fragments are thrown to the bottom. The sediment is again ground and centrifugalized; the process is repeated until almost no sediment remains. The second and supernatant liquids are united and to them glycerin, 20 per cent., and a little formaldehyde in solution are added; this emulsion is the "T. R." Each Cc. represents the residue from approximately 10 mg. dry originally virulent tubercle bacilli (human).

NEW TUBERCULIN, KOCH, BACILLI EMULSION ("B. E."). This represents the entire bacilli whether soluble or insoluble.

The germs are simply crushed and pulverized and mixed with equal parts of water and glycerin. The suspension contains 5 mg. dry, originally virulent, tubercle bacilli (human).

Action and Uses.—The different modifications and preparations of tuberculin are practically identical in their physiologic effects. They vary chiefly in a quantitative way and in absorbability. They are used both for diagnostic and therapeutic purposes:

Diagnostic Use.—"Tuberculin depends for its diagnostic value on a special sensitiveness acquired by the tissues after a tuberculous infection. This sensitiveness is manifested by an inflammatory response when tuberculin is brought in contact with the skin or mucous membrane."[2] The original tuberculin of Koch is considered the most satisfactory preparation for diagnosis but other filtered extracts are suitable. There are four principal methods of applying the test: 1. The Cutaneous Test (von Pirquet); 2. The Inunction Test (Moro); 3. The Conjunctival Test (Wolff-Eisner, Calmette); 4. The Subcutaneous Test. The proper performance and correct interpretation of these tests require much knowledge and experience. Some of them, notably the conjunctival and subcutaneous tests, may, under certain circumstances and in the hands of inexperienced or careless persons, do much harm.

Use in Therapeutics.—The successful employment of tuberculin in therapeutics depends upon a thorough knowledge of the disease and the individual patient; in many cases its use may do much harm. Baldwin[2] states the general principle involved as follows:

"The therapeutic use of tuberculin may have two fairly definite objects in view: One is to diminish the sensitiveness to the toxin—i. e., to itself—the other is to create intermittent local reactions and thus to stimulate the disease focus to heal

1. Some firms add trikresol to their preparations of this tuberculin; the necessity or advisability of this is considered questionable if the glycerin is of the proper strength. It is stated that trikresol will, in the course of time, weaken the tuberculin.
2. Baldwin: THE JOURNAL A. M. A., 1910, liv, 260.

or become absorbed. The possibility of the production of a recognizable immunity to the disease thus far by any form of tuberculin treatment is open to question. A certain degree of resistance is indirectly accomplished when sensitiveness to tuberculin is decreased to a marked degree, accompanied by constitutional improvement. Such specific resistance as can be obtained by tuberculin is gradually lost after the treatment is discontinued, so that statements that patients can be made 'immune' are unjustified."

As regards the choice of tuberculin and the method of administration Baldwin says:

"For therapeutic use the choice chiefly lies between the solutions and emulsions or vaccines. Opinions are too variant to permit the formulation of rules. In general the dosage is more controllable with solutions, and reactions are less frequent from emulsions." "Owing to the uncertain absorption of emulsions, reactions may ensue unexpectedly if the dose is increased greatly. The solutions are therefore safer for tuberculin immunization until some accurate standards for determining the dosage shall be made. The dosage is at present empirical; each individual case must be an experiment, and the symptoms carefully observed before each dose. The subcutaneous injection is the only satisfactory method for the administration of tuberculin. Tuberculin pills or capsules for stomach ingestion and suppositories per rectum are too uncertain of absorption to warrant any recommendation. Inunctions of tuberculin have a possible field in treatment of skin tuberculosis; otherwise they are also impracticable."

Pharmacopeial Preparations.— Koch's "old tuberculin" is official in the German Pharmacopeia under the name "Tuberkulinum-Kochi, Tuberkulin"; in the Belgian under the name "Tuberculinum"; in the Swiss under the name "Tuberkulinum Concentratum"; and in the French under the name "Tuberculine Brute." The French and Swiss Pharmacopeias contain also diluted tuberculin ("Tuberkulinum Normale Dilutum" of the Swiss, "Tuberculine Diluée" of the French, Pharmacopeia), prepared by diluting 1 Cc. of the concentrated tuberculin with 10 Cc. of 0.5 per cent. phenol. The French Pharmacopeia contains also a "Tuberculine Solide Purifiée" prepared by precipitating the "Tuberculine Brute" with ten times its volume of 80 per cent. alcohol, washing the precipitate with ether and drying *in vacuo*. For use 0.01 Gm. of this is dissolved in 100 Gm. distilled water.

Preparations[4]:

H. M. Alexander & Co., Marietta, Pa.

Original Tuberculin "O. T." (Koch); marketed in 1 and 3 Cc. vials.

Tuberculin.—Bouillon Filtrate "B. F." (Human). 1 and 3 Cc. vials.

Tuberculin Residue. T. R. (Human) (Koch).

Bacillin Emulsion "B. E." (Human).

Dixon's Tubercle Bacilli Extract (See "Fluid of Dixon," Medical News, Jan. 17, 1891). An extract of tubercle bacilli dissolved in normal saline solution. Marketed in syringes containing the extract from 1 mg. bacilli. The standard therapeutic dose is a weekly injection of the contents of 1 syringe, to be reduced in amount and frequency if the patient shows signs of reaction.

Dixon's Suspension of Dead Tubercle Bacilli (See "Possibility of Establishing Tolerance for Tubercle Bacilli," Medical News, Oct. 19, 1889). A suspension of dead tubercle bacilli in physiologic salt solution which have been decreased by prolonged treatment with alcohol and ether. Marketed in syringes containing 0.001 mg. bacilli, which is the standard therapeutic dose (cf. preceding).

Tuberculin for the Cutaneous Test (von Pirquet). A solution of *tuberculin original* in capillary tubes. Solutions of two strengths, one for children and one for adults, are prepared.

Tuberculin for the Ophthalmic Test. Tuberculin Precipitatum, "T. P." Prepared by precipitation with 95 per cent. alcohol from Koch's Old Tuberculin. Marketed in tubes in solutions of two strengths (0.5 per cent. and 1 per cent.).

Tuberculins for the Detre Differential Diagnostic Test. Three capillary tubes: 1. Tuberculin Original, "T. O." 2. Bouillon Filtrate, "B. F." (Human). 3. Bouillon Filtrate, "B. F." (Bovine).

Cutter Laboratory, Berkeley, Cal.

Tuberculin "Old," Koch; Concentrated; in 1 Cc. vials and preserved with trikresol; for use in solutions only. Also in serial dilutions; the latter in packages containing 5 bottles each holding about 8 Cc., ranging from 0.01 to 100 mg. per Cc.

Deny's Bouillon Filtrate; in 1 Cc. vials; preserved with trikresol; for use in dilutions only. Also in serial dilutions.

Tuberculin, Koch (concentrated).—For the cutaneous reaction; in capillary pipettes.

Tuberculin, Purified; 1 per cent. solution, for the ophthalmic reaction.

Farbwerke vorm. Meister Lucius and Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York.)

Tuberculin "Koch" (old), marketed in vials containing 1 Cc.

New Tuberculin "Koch" (T. R.), marketed in vials containing 1 Cc.

Koch's Bacilli Emulsion; marketed in vials containing 1 Cc.

Tuberculosis Diagnostic "Hoechst," Dry. Dried tuberculin free from glycerin, prepared from Tuberculin, Koch (old Tuberculin). To be used in 0.1 per cent. solutions for the tuberculo-ophthalmic reaction. Marketed in powder form and in 0.1 per cent. solution ready for use (in pipettes containing the amount necessary for one reaction).

H. K. Mulford Co., Philadelphia.

Tuberculin "Old" (O. T.). Marketed in 1 Cc. vials; also in serial dilutions in 5 vials of 8 Cc. each progressing by doses of 2 minims containing 0.001 mg. to 2 minims containing 10 mg.; in rectal suppositories containing from 1 to 500 mg. tuberculin in cacao butter.

Tuberculin, Bouillon Filtrate, Denys. Marketed in 1 Cc. vials; also in serial dilutions.

Tuberculin "B." Marketed both in concentrated form and in serial dilutions.

Bacillin Emulsion "B. F." Marketed in 1 Cc. vials; also in serial dilutions.

Tuberculin Ophthalmic Test Solution. Prepared from the precipitate obtained on treating Tuberculin "Old" with 70 per cent. alcohol; ½ and 1 per cent. solutions in physiological salt solutions are made of the dried precipitate.

Tuberculin Ophthalmic Test Tablets. The precipitate as prepared above; each tablet contains 1 mg. dried tuberculin; to be dissolved in 0.13 Cc. (2 minims) of water.

Tuberculin Ointment. An ointment consisting of 50 per cent. of tuberculin "Old" with an equal part of adeps lanae hydrosus.

Parke, Davis & Co., Detroit, Mich.:

Tuberculin, "Old" (Koch). Marketed in ½ Cc. bulbs.

Tuberculin B. E. (concentrated). Bacillus Emulsion, marketed in bulbs containing 1 mg. of dry tubercle solids per Cc.

Tuberculin B. F.; marketed in 1 Cc. bulbs; contains 0.4 per cent. trikresol.

Tuberculin T. R. Marketed in 1 Cc. bulbs in 2 strengths; one contains 0.001 mg. of tubercle solids per Cc., the other 1 mg. per Cc.

Tuberculin Discs for the Ophthalmic Reaction. Prepared by precipitating concentrated tuberculin with alcohol. Each disc contains 3.3 mg. tuberculin which when dissolved in 0.3 Cc. (5 minims) of water makes a 1 per cent. solution.

Moist Dead Tubercle Germs. For use in making the bacillary emulsion for the tuberculo-opsonic test.

Bacterio-Therapeutic Laboratory, Asheville, N. C.

This laboratory is licensed to manufacture all tuberculin preparations including Watery Extract of Tubercle Bacilli (von Ruck) and Tubercle Bacilli Emulsions (von Ruck); they are supplied only to physicians who make special applications for them.

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OTHER SERUM PRODUCTS

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ANTIRABIC VACCINE.—An emulsion of the cords of rabbits that have died as a result of the subdural injection of fixed Rabies Virus. The fixed virus is obtained by the passage of Rabies Virus through a long series of rabbits until the animals die after a uniform period of incubation; this period may vary according to the strain of virus. The cords are removed from the rabbits and, as a rule, dried over potassium hydroxide for a period of from 2 to 15 days.

Use.—Antirabic vaccine is used for the preventative treatment of Rabies. Emulsions of the cords are prepared with broth or saline solution and injected subcutaneously. The "scheme of dosage" varies according to circumstances but the general principle consists in daily injections, beginning with an emulsion of a cord dried for from 8 to 14 days and gradually increasing until a "2 day" cord is used.

H. M. Alexander & Co., Marietta, Pa.

Antirabic Vaccine. The fixed virus is of the strain employed by the Hygienic Laboratory, Washington, D. C. An emulsion of vaccine in glycerin sufficient for one dose, together with a syringe and needle, is contained in a vacuum tube by which a low temperature may be maintained for a period of 36 hours. A dose is sent each day by mail; the treatment requires 18 to 22 days.

4. The directions given by some manufacturers as to the method of using and the conclusions to be drawn from the use of their preparations seem to the Council to be open to criticism in certain respects. Thus many firms enclose droppers for use in making dilutions; droppers are not sufficiently accurate for use with strong solutions. Pipettes, accurately calibrated in the metric system, should be used.

The use of ready made "serial dilutions" as a routine practice is not to be commended. Such solutions deteriorate rapidly, especially in the presence of phenol or trikresol and the rate of such deterioration may not be the same in different dilutions; competent authorities think it desirable to limit the use of dilutions to one month or even less in the case of soluble tuberculins. Some firms state the date of manufacture on the labels; it is desirable that this should be done in all cases. Sufficient precautions are often not given as to the care necessary in passing from a weak to a stronger solution.

The dangers from the use of tuberculin in the eye are not sufficiently emphasized by some firms.

The "conclusions" which some manufacturers state may be drawn from a "positive reaction" seem to the Council to be in some cases stated too dogmatically.

Tuberculin Ointment Capsules (for the Moro Test). Consists of equal parts by weight of Koch's Old Tuberculin and anhydrous wool fat. Marketed in capsules.

ERYSIPELAS AND PRODIGIOSUS TOXINS (Coley).—Parke, Davis & Co., Detroit, Mich. A mixed culture of Streptococcus Erysipelatis and Bacillus Prodigiosus made according to the specifications of Dr. W. B. Coley. Marketed in 1 oz. bottles.

Action and Uses.—Loeb summarizes the results[1] of the treatment of sarcoma with these toxins as follows: "It is therefore likely that the treatment of inoperable sarcoma with the toxins of streptococcus and Bacillus prodigiosus leads to a cure in approximately 4 to 9 per cent. of cases. And some results obtained so far suggest that this method of treatment may prove of value as a post-operative procedure in diminishing the number of recurrences, and that in a certain number of cases it might limit the necessity for amputation of the limb in cases of sarcoma of the long bones. As to its mode of action, nothing definite can be stated, but it is likely that the toxins themselves, as well as the local and general reactions they produce, frequently affect the life of the sarcoma cells unfavorably."

The toxins are injected in gradually increasing doses, at first in a part of the body removed from the tumor, and later, if possible, directly into the tumor itself.

NORMAL HORSE SERUM.—Injection of this has been recommended in various conditions where the coagulative power of the blood is deficient, as in hemophilia, severe anemias and purpura with hemorrhagic tendencies. Applied locally to bleeding surfaces it is said to act as a styptic and to have a favorable action on septic wounds. There is, however, an element of danger in the use of this or any other serum in certain conditions (Anaphylaxis), and while this is slight because of the rarity of dangerous effects it is sufficient to make the use of serums for purposes in which their value is extremely doubtful a questionable procedure.

National Vaccine and Antitoxin Institute, Washington, D. C.

Sterile Normal Horse Serum. Marketed in syringes containing 10, 15 and 20 Cc.

(*To be continued*)

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

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NEW HAVEN, CONN.

(Continued from page 209)

DIGESTANTS

The drugs which are used to aid digestion are hydrochloric acid, pepsin, pancreatin, and diastase.

The scientific indication for the administration of hydrochloric acid can only be obtained by analysis of a test meal which has been taken on an empty stomach. On the other hand, a careful analysis of the symptoms and signs of indigestion may develop the probability of an insufficiency of this acid, and its administration in small doses (and often five drops of the dilute acid in a wine glass of water, after meals, is sufficient) will improve the digestion and the appetite. It is very frequent, however, that hydrochloric acid is present in the stomach in excess, and then the use of hydrochloric acid as a drug would be contraindicated.

There seems to be no reason for substituting for hydrochloric acid, lactic acid, and, in fact, there seems to be no good therapeutic use for lactic acid, and it could well be omitted from the Pharmacopeia.

Whether nitrohydrochloric acid is a stimulant to digestion, or whether it has specific action in stimulating the liver, is rather doubtful. In conditions of sluggish liver or in conditions of jaundice or so-called biliousness, nitrohydrochloric acid has long been used, but it is doubtful, as above stated, if it can act any differently than does hydrochloric acid. To have a specific activity of the combined acids, nitrohydrochloric acid should be freshly made and should be strong. Therefore one or two drops, well diluted, of the acidum nitrohydrochloricum is more efficient than more of the acidum nitrohydrochloricum dilutum. However, as just stated, both the acidum nitrohydrochloricum and the acidum nitrohydrochloricum dilutum could well be omitted from the next Pharmacopeia. The same is true of the diluted nitric acid.

It may be here parenthetically stated that there is no reason for perpetuating in another Pharmacopeia the diluted hydrocyanic acid. As a gastric sedative or as a sedative expectorant it is a myth, unless a dangerous dose is administered.

The amount of pepsin that is used internally is continuously on the decrease. This must show that its therapeutic value as a digestant is much less than was supposed. It also probably shows that the small amount that is administered is of little value in aiding the digestion of an ordinary meal. Also, its value has been overestimated because it is so frequently given with hydrochloric acid, and the hydrochloric acid is what has aided the digestion, and not the pepsin. It is probably very infrequent that pepsin is much diminished in the stomach, or, if it is, that dilute hydrochloric acid will not stimulate its secretion to a sufficiency. To administer pepsin with an alkali, as is often done, is absurd, as the alkali will inhibit or even prevent its activity. To combine pepsin and pancreatin in one prescription, to be administered either before or after meals, seems absurd. The pancreatin might act as long as the contents of the stomach remained alkaline or neutral from the saliva or alkaline foods ingested, but probably in much less than an hour, ordinarily, its activity in the stomach must cease from the normal acidity which develops, and its activity would be permanently prevented, and by the time it reached the duodenum it would be inert.

As a menstruum, in various elegant liquid preparations, in which to administer disagreeable, irritant or bad tasting drugs, pepsin preparations may have value, but there certainly is no need for the large number offered by the National Formulary.

There is probably no reason for the administration of pancreatin internally. Pancreatin is of value when combined with its proper amount of alkali as a predigestant of protein foods. Its value for this purpose is very great.

Diastase preparations and malt preparations may have their use in aiding the digestion of starches, but ordinarily it is much better, when there is poor digestion of starches, to limit the amount ingested or to discover the particular starch that is the best digested. There is no amount of diastase or malt that will cure, or much aid, a diabetic.

ANTACIDS

To reduce hyperacidity or lessen abnormal acidity of the stomach the following drugs are valuable: sodium bicarbonate, magnesia, chalk, lime water, and some form of ammonia.

As it is always better to prevent than to cure, a proper regulation of the diet and the proper treatment of any inflammation of the stomach that may be present constitute the curative treatment of pyrosis, heart burn, and disagreeable sensations due to abnormal acidity of the stomach. The above medicinal treatments are purely symptomatic. The most used and the most satisfactory

1. Loeb: THE JOURNAL A. M. A., 1910, liv, 262.

is probably the bicarbonate of soda, but constant repetition of this alkali tends, if not actually to injure the stomach, at least to do it no good, and may increase metabolic waste and cause actual loss of weight. This, of course, it cannot do in any series of doses, but if persistently taken for weeks or months, it certainly is not good treatment. Sodium bicarbonate taken just before a meal, in small doses, will probably quickly stimulate the outpouring of normal hydrochloric acid, and the digestion may be more quickly completed. The most disagreeable and abnormal stomach acidity, however, occurs two or three hours after a meal, and this may not be due to increased hydrochloric acid, but to lactic acid or other acids produced by fermentation. The bicarbonate of soda administered at this time will surely counteract the acidity and stop the disagreeable sensations, but will cause the production of gas, which often must be eructated.

It is not good practice to swallow bicarbonate of soda tablets or soda-mint tablets without previously either dissolving or at least crushing them with the teeth. A bicarbonate of soda tablet, as well as most tablets which contain salts, may irritate and cause inflammation of the mucous membrane of the stomach in the region where it drops and slowly dissolves. The swallowing of such tablets should be discouraged, and the same is true of the quite general mistake of sucking and then swallowing the concentrated solution of potassium chlorate tablets when there is slight sore throat. I believe that ulceration of the stomach can be caused by potassium chlorate concentrated solution thus swallowed.

Perhaps the next most active alkali is the aromatic spirits of ammonia, from a few drops to half a teaspoonful, given in plenty of water. This not only counteracts the acidity, but is a slight cardiac stimulant. The other results are just the same as with the bicarbonate of soda.

As the aromatic spirits of ammonia is one of the best preparations of ammonia, either for cardiac stimulation or as an antacid, there seems to be no reason for the spiritus ammoniæ in the next Pharmacopeia. There is also no reason therapeutically that the Pharmacopeia should recognize aqua ammoniæ fortior.

I might parenthetically now say there is no use for ammonium iodid in the Pharmacopeia, and no use for ammonium salicylate. It is also quite doubtful if ammonium bromid is less depressant than sodium bromid. It certainly is very much more disagreeable to take.

Magnesia, or magnesii oxidum, is a simple, and perhaps the simplest, antacid. It is hardly absorbed at all, slightly laxative in its action, and can probably only do harm when it is taken in large amounts for a long time, and then it may form concretions much as does bismuth when persistently taken, this in spite of its slight laxative action. In the form of the milk of magnesia it is one of the most elegant antacids offered. The magnesii oxidum causes less production of gas than does the magnesii carbonas, and there seems to be no reason for the preference of magnesii carbonas above the magnesii oxidum. The former might, therefore, be omitted from the Pharmacopeia. The magnesii oxidum ponderosum (heavy magnesia) seems superfluous.

Chalk in the form of the official creta præparata is antacid and slightly constipating. It is not as active as the other antacids, and the dose required is slightly larger. For children with hyperacidity of the stomach and intestines, with diarrhea, chalk mixture is often a simple symptomatic treatment, although free catharsis and a regulated diet is better treatment. If the bowels are constipated, milk of magnesia is better treatment.

Lime in the form of lime water (liquor calcis) is frequently used as an antacid, and frequently used in milk to prevent the formation of large curds. To be of much value, the dose should be larger than is generally used. It is slightly constipating. As an antacid a syrupy preparation of lime, as syrupus calcis, would seem contraindicated. There is probably no use in the next Pharmacopeia for syrupus calcis, the liquor calcis, when needed, answering all therapeutic purposes.

CARMINATIVES

Carminatives are used to increase peristalsis of the intestines and to promote eructations of gas from the stomach when such is present in abnormal amount, and often to prevent nausea from disagreeable tasting drugs, and as pleasant menstrua for any drug. The number in the Pharmacopeia is too great. It is probable that as carminatives peppermint, capsicum, cinnamon, anise cardamon and ginger represent all that are required.

If spearmint, or mentha viridis, be omitted from the Pharmacopeia it will do away with the adjective piperita and save unnecessary writing when peppermint is ordered.

It is doubtful if the fluidextract of capsicum is needed. The oleoresin of capsicum may be occasionally used.

It should be decided in the next Pharmacopeia which cinnamon is the best, and that alone should be made official. It seems unnecessary to have both a tincture and a spirit of cinnamon; the spirit is sufficient.

Anise and cardamon are much favored as carminatives, and ginger is often a valuable aromatic. It is doubtful if the fluidextract of ginger is needed, or the oleoresin; the tincture and the syrup are sufficient.

If the rest of the aromatics are removed from the Pharmacopeia, and if their oils, spirits and waters are removed, the Pharmacopeia will be considerably diminished in bulk.

CATHARTICS

In this age of constipation and the age in which a large number of people must take, or at least do take laxatives, the necessity for advising such people to use only the mildest has become evident. There has also gradually become less and less need of strong, drastic, irritant cathartics. Occasionally they may be indicated, but it is probably rare. It is probable that gamboge, colocynth and scammony could be dropped without any serious loss of cathartic efficiency.

The compound cathartic pill, containing, as it does, six cathartics, is a left-over, old, hereditary composition. This pill, however, is strongly favored by many surgeons and some internists, but it is very true and easily proved that a proper dose of other simpler cathartics would act as well. The vegetable compound cathartic pill is not needed.

Euonymus, with its extract and fluidextract, and leptandra, with its extract and fluidextract, could all be well omitted from the Pharmacopeia.

The number of preparations of aloes and rhubarb should certainly be reduced. It is doubtful if mastiche and myrrh have any activity, and probably do not do more in combination with aloes than perhaps to inhibit its solution. The tincture of aloes and myrrh, the pills of aloes and myrrh, the pills of aloes and mastiche, and the pills of aloes and iron (each physician should be able and capable of combining aloes and iron to suit his individual patient) could well be omitted.

(To be continued)

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[*For other information see second page following reading matter*]

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NORMAL AND PATHOLOGIC LOCALIZED DEPOSITS OF FAT

There occurs in many treatises on pathology and surgery a statement to the effect that lipomas commonly retain their size, and may even grow larger, at the same time that all the natural fat deposits of the body are being exhausted in cachexia or starvation. This phenomenon, if at all constant or even if frequent, has more than passing interest as a medical curiosity, for it indicates that one of the simplest of neoplasms, which seems to show no essential deviation in structure from the normal tissues from which it arises, does differ in some fundamental way as to its metabolism; and also, being a striking exception to the other fat tissues, this behavior of the lipomas should throw some light on the problems of fat metabolism. It is unfortunate, therefore, that most of the references to the behavior of lipomas in emaciation consist of general statements as above cited, without specific details; and Shattock, in a recent discussion of this topic, finds that the evidence which is available is not convincing, and cites a case in which the lipoma decreased in size when the patient lost weight. It would be well if practitioners having cases which furnish any evidence on this subject would put them on record now that the question has been raised.

With the physiologic behavior of lipomas as a text, Shattock has made a most interesting excursion into the comparative anatomy of localized fat deposits, which brings out certain new facts as well as others which are not generally familiar.[1] Many animals normally possess localized deposits of fat which are certainly normal in their physiologic behavior, being absorbed whenever the body needs the fat reserves, although anatomically they are often as distinctly circumscribed as the lipoma, and if it were not known that they were natural and constant in the group of animals in question they would probably be designated as lipomas. Perhaps the most familiar example is the "hump" of the camel, which is simply a mass of fatty tissue on which the animal draws in its journeys across the desert, finishing a particularly exhausting trip with the hump flabby and drooping. The hump of the zebu consists of both fat and muscle, and, as there is no mechanical function for the latter to perform, it is probably a storehouse of protein. The fat-tailed breeds of sheep use their remarkable appendages (which in some breeds are so large as to require that wheels be fastened under them to prevent abrasions from dragging) as a reserve in case of need, and a similar provision exists in the fat-rumped sheep. For the latter there is a striking human analogy in the fat masses of the buttocks and thighs of the Bushmen and Hottentots, which are said to become flabby as a result of deprivation of food, and which are circumscribed fat deposits distinct from the diffuse fat of general obesity. It is interesting to note that representations of this steatopygy are found in the relics of predynastic Egyptian art, indicating that in ancient times representatives of the Bushmen existed as far from their present South African home as the Nile valley, and even Crete. In time they were driven farther and farther south by the stronger races until they are now limited to a small area of the continent of which they were the primitive inhabitants.

In many hibernating mammals there are specialized masses of fatty tissue in the neck, which annually take on a great deposit of fat, but which are not simple adipose tissue. They contain a peculiar type of cell, rich in protoplasm, in which lie many small fat globules, entirely different from the large unilocular fat cells of ordinary fat tissue. This tissue is very vascular, and is properly considered to be a special organ with the function of storing fat with exceptional rapidity in a readily accessible condition. As is well known, human cretins frequently exhibit fat masses about the neck and axillæ, and Shattock finds that these correspond to the fat glands found in the neck of the hibernating mammals. The normal human neck also contains similar but less conspicuous fat glands, equipped with the same specialized vacuolated cells. In case of emaciation this fat is drawn on and the size of the masses decreases. Another interesting form of local fat deposit in the human being is exhibited in the so-called "sucking cushions" of infants, which lie in the cheek in front of the masseter muscles and prevent the cheek from being drawn in between the jaws in sucking. These structures seem to be localized masses of adipose tissue of the ordinary type, differing from the subcutaneous fat tissue neither in structure nor in chemical composition; practically they are encapsulated lipomas, and (which is of special significance) they do not give up their fat when the child becomes emaciated, but rather, by their persistence, become unusually conspicuous when the adjacent subcutaneous fat wastes away. Here, then, we have a normal prototype of the lipoma, in the form of a deposit of fat that is not available to the body as a reserve food-supply, and this fact makes it entirely probable that lipomas may have the same property of persisting independent of the existing conditions of fat depletion.

1. Shattock, S. G.: Normal Tumor-like Formations of Fat in Man and the Lower Animals, Proc. Roy. Soc. Med., 1909, ii, 176

THE STATUS OF SERUMS, VACCINES, ETC.

With an increasing knowledge of the antitoxins, vaccines, viruses and similar products, comes the realization of their great importance as remedial agents. In this

group we have vaccine virus, the greatest of all prophylactic remedies; diphtheria antitoxin, the greatest specific in bacterial diseases; tuberculin, of so much value in the diagnosis and treatment of tuberculosis; tetanus antitoxin, antirabic virus, and a large number of bacterial vaccines.

There is no class of remedial agents on which the physician should be better informed and none, unfortunately, concerning which it is so difficult to obtain a scientific and unbiased opinion. Only one of the drugs of this class—diphtheria antitoxin—is recognized by the present U. S. Pharmacopeia, and, although some of the others (vaccine virus, for instance) have been in use for some time, all are the subject of such active investigation at the present time and so many new facts concerning them are being discovered that it is extremely difficult for a practitioner to keep abreast of these developments.

Scientific and disinterested information concerning them is widely scattered and often not easily accessible; the result has been that physicians have become dependent to an unusual degree on the circulars issued by manufacturing houses. Some of these circulars are almost models of scientific accuracy; others, unfortunately, are far from accurate and the directions given for the use of the products are not even safe.

In order to meet in a certain measure this need for unbiased information concerning these agents, the Council on Pharmacy and Chemistry decided some time ago to include in New and Nonofficial Remedies a chapter on sera, viruses, vaccines and analogous products. The first report on this subject was published in THE JOURNAL, Sept. 18, 1909, and consisted simply of a list of the products of this class which legally may be sold in interstate commerce in the United States. The system of federal control exercised over them was also briefly outlined. At that time it was stated that descriptions of the individual products would follow; these are published this week in the Department of New and Nonofficial Remedies.

In order to aid the physician to a better understanding of these products and their uses, the officers of the Section on Pharmacology and Therapeutics invited a number of the foremost authorities of the country to take part, at the Atlantic City meeting, in a symposium on "The Present Status of Vaccine and Serum Therapy with Special Reference to the Products on the American Market." This symposium[1] appears in this issue, and, taken with the descriptions in New and Nonofficial Remedies, gives a survey of the field of serotherapy that is at once instructive and inspiring in its extent and detail. In these products the medical profession has an agency equally as potent and exact as drugs and one whose limitations are still unknown.

1. This symposium is complete in this issue except for one article which had to be left over until next week because of its unusual length. This is the article by Dr. B. A. Thomas, Philadelphia, on "The Results of Three Years' Experience in Bacterial Immunization."

JONNESCO AND STOVAIN

The publicity given to the visit of Professor Jonnesco to this country, and the extravagant way in which the newspapers have commented on his method of anesthesia, have awakened the desire in the minds of many physicians to know the exact status of spinal anesthesia.

Since Corning in 1885 demonstrated the possibility of producing surgical analgesia by intraspinal injection, in addition to cocain other drugs have from time to time been used for this purpose, among them novocain, eucain, tropococain, alypin and stovain. Each has had its enthusiastic advocates, though on account of the many annoying immediate effects, and frequent fatalities, as well as unfavorable sequelæ in the non-fatal cases, the method has at no time had a large number of permanent adherents. As previously stated in THE JOURNAL,[1] stovain is not a new anesthetic, but has been in use both as a local and general spinal analgesic since its discovery by Fourneau and its presentation to the profession by Haller in 1904.

On account of the depressing effects of all these drugs on the heart and respiration, spinal analgesia has been confined almost entirely to the low or lumbar injection for operations on the abdomen and pelvic viscera. Jonnesco uses with stovain a certain proportion of strychnin and asserts that thus the lethal effects on heart and respiration are overcome, permitting the use of the drug in the high or dorsal injection for operations on the upper portion of the trunk, the arms, neck and head. In this respect, it may be considered that Jonnesco's method, being an improvement over the employment of the analgesic drug alone, is entitled to stand by itself and to be judged without too great emphasis being laid on the shortcomings of the method as heretofore employed.

But the effects on these two vital functions are not the only serious shortcomings of this method of anesthesia, whether stovain or any other of the drugs named be employed. Holländer, who is rather an advocate of the method in many cases, admits that in abdominal operations the occurrence of unexpected hemorrhage with the patient conscious would seriously hamper the surgeon. Rehn says that surgeons generally agree that the high anesthesia is dangerous, and that it is more dangerous in the young than in the elderly in whom physiologic hardening of the tissues of the cord renders them less sensitive. He says further that there is little prospect of localizing the anesthetic in the subarachnoid space, and that it is strictly contraindicated in suppurations, disturbances in the central nervous system, widespread tuberculosis and in arteriosclerosis, which latter would seem greatly to limit its use in the very cases in which it is said to be most useful, on account of the frequent heart and nephritic accompaniments of arteriosclerosis. Propping's experiments show that a fluid of greater specific gravity than the cerebrospinal fluid

1. Nov. 27, 1909, p. 1831, and Dec. 18, 1909, p. 2117.

quickly diffuses itself and may reach the medulla with fatal effect. It is to avoid this possibility that Jonnesco and others are careful not to allow the patient to lie in the fully recumbent position for some minutes after the injection.

Another serious objection has been stated by Spielmeyer, whose experiments on rabbits and examination of fatal cases showed that degeneration of the motor ganglion cells of the anterior horn takes place, to an irreparable degree in many cases, with a dose of 0.07 gm. of stovain. These cord changes did not take place immediately but some days or weeks after the injections. No direct reports of experiments on this point with the other spinal drugs have been noted, but it is not unreasonable to come to the conclusion that the injection of these drugs into the delicate structures of the cord and its membranes may have exactly the same disastrous results.

An article on Jonnesco's demonstrations in this country by Dr. J. J. Moorhead appears in this issue. Dr. Moorhead not only attended Professor Jonnesco's operations in New York, but followed him to Chicago and to Rochester, Minn., and consulted many prominent surgeons, to secure a consensus of opinion, and sums up the grounds on which hostile criticism of the method may be based. It is not to be understood that the method is here condemned entirely, nor that the somewhat radical conclusions of Dr. Moorhead's paper are fully approved. The attitude assumed is rather to allow credit for all of real merit that the modified method possesses.

It is to be remembered that Professor Jonnesco is one of the leading surgeons of his own country. For this reason, and also because he is a man of considerable wealth, it may be assumed that his research and work in surgery are in the interest of pure science. He is an enthusiast on the method of using stovain originated by him, and he deserves credit for his courage in coming to a country with whose language and customs he was not acquainted to demonstrate his method. It is unfortunate that so much publicity was given the matter in the sensational newspaper press after its own peculiarly inaccurate manner. This perhaps prejudiced the profession to a certain extent and detracted from such an impartial hearing as the method may have been entitled to.

The medical profession welcomes every new advance in the art and science of medicine, but it is right that it should not give its approval too easily until a method has passed most severe tests. As Dr. Moorhead says, we have had the opportunity of seeing this method in the hands of an expert, and if it makes no better showing under his direction, it certainly behooves the average man to use it only with the utmost precaution. There are undoubtedly cases in which this method of producing anesthesia is of service, but in the majority of instances, it is apparent that other methods are better.

PREVENTABLE WASTE OF LIFE

Especially significant as an indication of the progress for better health conditions is a pamphlet recently issued by the Provident Savings Life Assurance Society of New York, entitled "The State and the Death-Roll," and designed to show the increased waste of life from kidney, heart, brain and other non-communicable maladies in the past thirty years, in contrast to the reduction in the death-rate from contagious diseases. The author, Mr. E. E. Rittenhouse, president of the society, refers to the report of Professor Irving Fisher on national vitality, showing that over six hundred thousand human lives are needlessly sacrificed in the United States every year, and that about three million persons are constantly seriously ill in the United States, more than one-half of these illnesses being preventable. The financial importance of these statements to life-insurance companies is evident.

While the general death-rate and especially the death-rate from communicable diseases has been reduced, the rate from non-communicable diseases due primarily to personal habits, overwork, etc., has been largely increased. In proof of this, the following facts are cited: The death-rate for consumptives in the registration area in the United States has decreased 49 per cent. since 1880, while the death-rate from diseases of the kidneys has increased 131 per cent. in the same time. The death-rate from heart disease has increased 57 per cent., from apoplexy 84 per cent., and from all three 83 per cent. At the same time, the death-rate from heart, apoplexy and blood-vessel diseases in England and Wales has decreased 7 per cent. Particularly illuminating is the table showing the death-rate for different ages by decades from 1880 to 1907, that of Massachusetts and that of England and Wales being contrasted. Between the ages of twenty and thirty, the death-rate in Massachusetts has decreased 41 per cent., while between the ages of twenty-five and thirty-five it has decreased in England and Wales 34 per cent. Between the ages of thirty and forty, the death-rate in Massachusetts has decreased 15 per cent. and in England and Wales 25 per cent., but between the ages of forty and fifty the death-rate in Massachusetts has increased 35 per cent., while in England and Wales the rate from forty-five to fifty-five has decreased 11 per cent., making a total difference of forty-six lives per hundred between the ages of forty and fifty-five, the most valuable years of a man's life, in which England and Wales have gained while Massachusetts has lost. Mr. Rittenhouse concludes that this abnormal increase in the death-rate from non-communicable diseases is due to the early wearing out of vital organs due to excesses in eating, drinking, working and playing—in short, intemperate living and the strenuous life. He says: "The science of sanitation and disease prevention has steadily advanced and yet the death-rate from these degenerative maladies has increased by leaps and bounds. The fact that the mortality in the younger lives is decreasing is very gratify-

ing, but it offers no excuse for ignoring the extraordinary increase in mortality in middle life and old age. We try to protect a man from a disease which another might give him, but, without the slightest help, permit him to die of a disease which he may unknowingly give himself."

As a remedy for existing conditions, Mr. Rittenhouse urges that the state inaugurate a systematic and permanent campaign of education for the prevention of diseases of all kinds by the distribution of health bulletins, the liberal use of health and medical inspectors and by other methods. He also suggests that the state provide free medical examinations, periodically, for any who may desire them, for the purpose of detecting disease in time to check and cure it. This plan, he says, would enlarge the work of the health departments and would require an increased staff of inspectors and medical examiners, but this would be well within the bounds of reason and would be amply justified by the results.

Mr. Rittenhouse's pamphlet is a most significant and encouraging evidence of the rapid growth of public opinion in favor of the prevention of disease and the conservation of life. When it is once thoroughly realized by business organizations and by commercial interests that the present waste of life means an enormous loss not only to the country at large, but also to the business interests themselves, steps will be taken to prevent the waste of life and energy which has been going on unchecked. This subject is of interest not only to capital as represented by the life-insurance companies and invested interests, but also to organized labor, since a large share of the preventable loss through sickness and death falls on the laboring man and his family.

SEROTHERAPY AND THE PHARMACOPEIA

Rosenau's remarks in this issue on "Why Vaccine Virus Should Be in the Pharmacopeia" are especially pertinent. No one conversant with modern medicine doubts for an instant that vaccine virus and some of the antitoxins and bacterial vaccines are of quite as great importance in the prevention and treatment of disease as many of the preparations at present in the Pharmacopeia and vastly greater than some. The last committee of revision made an important advance when it included serum antidiphthericum; it certainly may be taken for granted that the next committee will include an antidiphtheritic globulin and a number of other products of this general class. In view of the great importance of the subject, it is to be hoped that the pharmacopeial convention will elect as a member of the committee of revision some one who is a recognized authority on these subjects. Nothing will do more to restore the Pharmacopeia to its proper place in the eyes of the medical profession than the inclusion in its pages of those products of modern research which have become such invaluable additions to the armamentarium of the present-day physician.

Medical News

DISTRICT OF COLUMBIA

Society Meeting.—At the annual meeting of the Medical Society of the District of Columbia, January 3, the following officers were elected: President, Dr. Louis Mackall; vice-presidents, Drs. D. Olin Leech and Philip S. Roy; corresponding secretary, Dr. Dwight G. Smith; recording secretary, Dr. Henry C. Macatee; treasurer, Dr. Charles W. Franzoni; librarian, Dr. Edwin L. Morgan, and censors, Drs. D. Olin Leech, Henry B. Deale, Francis R. Hagner, James D. Morgan, and Raymond T. Holden.

COLORADO

Personal.—Dr. Mary E. Phelps, Canon City, is about to leave for Europe, and during her absence her practice will be in charge of Dr. Minerva M. Knott, Sedalia, Mo.——Dr. Pruitt, Redstone, has been appointed physician of the Colorado Fuel and Iron Company, vice Dr. Lewis B. Paul, resigned.

Society Meeting.—The annual meeting of Mesa County Medical Association was held in Grand Junction, January 11, and the following officers were elected: Dr. P. Phelps Collins, Grand Junction, president; Drs. Harry Freudenberger, Grand Junction, and Robert B. Porter, Fruita, vice-presidents; Dr. Carl W. Plumb, Grand Junction, secretary-treasurer; Dr. Benjamin F. Miller, Grand Junction, delegate to the state association, and Dr. Francis D. Coltrin, Grand Junction, alternate.

Asylum Report.—In his annual report Dr. Alfred P. Busey, superintendent of the State Hospital, Pueblo, recommends the purchase of a farm near the hospital for colonization and open air treatment of patients. There are at present 896 inmates in the institution. When the three cottages provided for by the last legislature have been built, he claims that there will still be enough on the waiting list to more than fill the institution, necessitating other additions. The daily cost of maintaining each patient was forty-one cents.

FLORIDA

New Laboratory for State Board.—The State Board of Health is to erect a laboratory in Jacksonville, on property donated by the city at Raspberry Park. The proposed building will cost about $15,000, and will contain accommodation for experiments and investigation, incubator rooms, refrigerator rooms, offices, library and records. The laboratory is to be in charge of Dr. Henry Hanson, formerly of Milwaukee, Wis.

Personal.—Dr. John Halton, Sarasota, narrowly escaped drowning in Big Sarasota Pass, while fishing, December 29.——Dr. Charles E. Terry has been appointed health officer of Jacksonville. Dr. Joseph L. Romero, retiring health officer, was presented by the health department with a loving cup in appreciation of his services.——Dr. Gaston Day has been appointed city physician of Jacksonville.——Dr. James H. Randolph, chief physician of the Florida Hospital for the Insane, Chattahooche, has resigned, to take effect April 1.——Fire in the Holder Block, Ocala, recently caused a damage of about $400 to the office of Dr. F. E. McClane.

ILLINOIS

Hospital News.—The Whiteside Hospital, Sterling, the only hospital in Whiteside county, was dedicated January 1.——The medical staffs of the state hospital are now placed in the new classification of medical assistant superintendents, physicians, assistant physicians, and medical interns.

Safeguarding the Babies.—Dr. Catherine Hedger, at a meeting of the Chicago Association of Day Nurseries, January 13, launched a movement to place all public nurseries in Illinois under the state law, the proposed law following in the general lines of the law at present in force in New York State.

Per Capita Cost of State Institutions.—The last quarterly bulletin of the Illinois Board of Charities gives the following as the net cost per capita of maintaining each of the state hospitals for the year: Chester, $44.69; Kankakee, $38.23; Peoria, $37.75; Anna, $37.54; Jacksonville, $34.15; Elgin, $33.88, and Watertown, $31.97.

Personal.—Dr. Carl G. S. Rydin has resigned from his position in the Kankakee State Hospital to take effect February 1.——The office building of Dr. William W. Huston, Good Hope, was seriously damaged by fire, January 10.——Dr. George L. Eyester, Rock Island, who has been under treatment in Chicago, has entirely recovered.——Dr. Ora L. Pelton, Jr., Elgin, will return from Europe about the middle of Feb-

ruary.——**Dr. Eli V. Rice, Chenoa,** who has been seriously ill with inflammatory rheumatism, is reported to be convalescent. ——Dr. J. T. Black, one of the staff of the Illinois Asylum for Feeble-Minded Children, Lincoln, has resigned.——Dr. Jacob Huber, Pana, is reported to be critically ill.——Dr. George H. Brannon, Manhattan, who was recently operated on in St. Joseph's Hospital, Joliet, has returned home.——Dr. Joseph DeSilva, Rock Island, has been appointed a commissioner for the Joliet Penitentiary.

Chicago

Hospitals Benefit.—The net receipts of the annual charity ball amounted to $29,000, which is to be distributed among twelve institutions.——At a benefit given January 13, at the Illinois Theater for the endowment of a bed at St. Joseph's Hospital, $1,500 was netted.

Personal.—Dr. Eugene S. Talbot has been appointed a corresponding member of the Budapest Royal Society of Physicians.——Dr. John A. Cavanaugh has been appointed professor of otology, rhinology and laryngology in the Chicago Eye, Ear, Nose and Throat College.——Dr. Frank B. Earle has been elected surgeon of the local organization of the Society of Colonial Wars.——Dr. Richard H. Street has been appointed fleet surgeon of the Chicago Yacht Club.

INDIANA

Personal.—Dr. Warren S. Williams has been appointed local surgeon for the T. and C. I. Railroad at Kendallville.——Dr. Clay A. Ball, Muncie, was operated on for appendicitis, December 18.

Anatomic Society Incorporates.—A number of physicians of Evansville have organized the Evansville Anatomical Society, with the object of the study of practical anatomy. Drs. Walter R. Cleveland, Henry C. Knapp and Eugene C. Taylor have been elected directors.

Reciprocity with New York.—Dr. William T. Gott, Crawfordsville, secretary of the State Board of Medical Registration and Examination, announces that reciprocal relations as regarding physicians' licenses have been established between Indiana and New York, subject to the rules and regulations of reciprocity between the medical boards.

State Board Organizes.—The State Board of Medical Examiners and Registration met in Indianapolis, January 11, and organized by the election of the following officers: President, Dr. James M. Dinnen, Fort Wayne; vice-president, Dr. Solomon G. Smelser, Shirley; secretary, Dr. William T. Gott, Crawfordsville, and treasurer, Dr. Moses S. Canfield, Frankfort.

Elections.—The annual election of the Indianapolis Medical Society was held January 5, resulting as follows: President, Dr. Samuel E. Earp; vice-president, Dr. John L. Freeland; secretary-treasurer, Dr. Roscoe H. Ritter; councilors, Drs. Charles F. Neu, Alois B. Graham and Harry G. Gaylord; and delegates to the state association, Drs. David Ross, John H. Oliver and John A. McDonald.

Physicians' Protective Association.—The Protective Association of Physicians and Surgeons has been incorporated in Indianapolis, with a capital stock of $10,000. The officers of the organization are: President, Dr. Frederick A. Tucker, Noblesville; vice-presidents, Drs. Charles H. Emery, Bedford, and Thomas F. Spink, Washington, secretary and general manager, Fred I. Mills, Robinson, Ill., and treasurer, Dr. J. A. Garrettson, Indianapolis.

IOWA

Coming Meeting.—The Southwestern Iowa Medical Association will hold its annual meeting in Albia, February 17.

New State Board Secretary.—Dr. Guilford H. Sumner, Waterloo, the new secretary of the Iowa State Board of Health, has gone to Des Moines and assumed the duties of his office.

The Afflicted.—Dr. Joseph J. Flannery, Des Moines, who has been seriously ill at Mercy Hospital, Des Moines, is reported to be greatly improved——Dr. George E. Crawford, Cedar Rapids, underwent an operation for disease of the gall-bladder, January 1, in St. Luke's Hospital.——Dr. David A. Robertson, Williams, is reported to be seriously ill.——Dr. Harry R. Layton, Leon, is reported to be seriously ill with heart disease.—— Dr. Anthony P. Donohoe, Davenport, who was recently operated on at Mercy Hospital, is reported to be convalescent.—— Dr. Elijah W. Jay, Marshalltown, who was operated on for the removal of gall-stones in Augustana Hospital, Chicago, has returned to his home.——Dr. William L. Creswell, Danbury, was operated on for appendicitis recently.

Personal.—The office of Dr. John W. Dixon, Burlington, was entered by burglars, January 1, and $70 was stolen.——Dr. Everett E. Richardson, Webster City, has been appointed a member of the State Board of Health, vice Dr. Alexander M. Linn, Des Moines.——Dr. J. C. Ryan has been appointed professor of surgery in the Medical Department of Drake University, Des Moines.——Dr. Grover C. Coakley has purchased the interest of Drs. John W. Reynolds and Oliver S. Barber in the Physicians' Hospital at Preston, and will conduct the institution as a private hospital.——Dr. George M. Agan, mayor of Silver City, has resigned and will move to Glenwood.——Dr. Peter A. Bendixen, Davenport, has been appointed local surgeon for the Burlington System.

Society Meetings.—The Poweshiek County Medical Society, at its annual meeting, December 5, elected Dr. Clinton E. Harris, Grinnell, president; Dr. Delano Wilcox, Malcolm, vice-president; Dr. E. E. Harris, Grinnell, secretary-treasurer, and Dr. Charles D. Busby, Brooklyn, censor. Dr. Bert L. Eiker, Leon, a member of the State Board of Health, presented a paper on "Pellagra."——The thirty-seventh annual meeting of the Marion County Medical Society was held in Knoxville, December 9, and the following officers were elected: Dr. Ernest C. McClure, Bussey, president; Dr. Clarence E. James, Durham, vice-president; Dr. Corwin W. Cornell, Knoxville, secretary; Dr. Joseph W. Finarty, Knoxville, delegate to the state society, and Dr. Lewis E. Park, Tracy, censor.——Clinton County Medical Society, at its annual meeting, held in Clinton, January 5, elected Dr. Kurt Jaenicke, president; Dr. Frank N. Keefe, vice-president; Dr. Frank O. Kershner, secretary-treasurer; Dr. Grace Schermerhorn, librarian; Dr. John F. H. Sugg, delegate to the state society, all of Clinton; and Dr. George Hofstetter, Lyons, alternate.——At the annual meeting of Muscatine County Medical Society, December 30, the following officers were elected: President, Dr. Elbridge H. King, Muscatine; vice-presidents, Drs. Edward K. Tyler, Muscatine, and Francis H. Battey, West Liberty; secretary-treasurer, Dr. Jeff D. Fulliam, Muscatine, and censor, Dr. Alexander R. Leith, Wilton Junction.——At the last meeting of the Woman's Clinical Society, Des Moines, Dr. Lenna L. Means was reelected president; Dr. Sophie H. Scott, vice-president, and Dr. Jennie M. Coleman, secretary.

LOUISIANA

Slidell Sanatorium.—The Louisiana Antituberculosis League of New Orleans will erect two buildings 40 by 60 and twelve two-room cottages of frame construction at Slidell to cost $6,000.

Tuberculosis Sanatorium Site Donated.—The Great Northern Railway has donated a site for the St. Tammany Cottage Home for Tuberculosis, on one of the highest points in the parish, well drained and covered with pine trees. The railway has not only donated the site, but will dig an artesian well and transport the cottages and furnishings of the present sanatorium to the new site free of charge.

MAINE

Examiners of School Children Appointed.—At the meeting of the school board of Bangor, December 14, Drs. Blanche M. Mansfield, Harold H. Crane, Luther S. Mason and Harris J. Milliken were elected medical examiners of public schools of the city.

Medical Society Meetings.—The annual meeting of Kennebec County Medical Association was held in Augusta, December 30. Dr. Herbert E. Milliken, Waterville, was elected president; Dr. Richard H. Stubbs, Augusta, vice-president; Dr. Wellington Johnson, Augusta, secretary-treasurer; and Dr. Oscar C. S. Davies, Augusta, censor.——At the annual business meeting of Cumberland County Medical Association, held in Portland, December 10, Dr. Alfred King, Portland, was elected president; Dr. Charles B. Sylvester, Harrison, vice-president; Dr. Charles S. Knight, Portland, secretary; Dr. Arthur S. Gilson, Portland, treasurer; and Dr. Willis Bryant Moulton, Portland, censor.

MARYLAND

The Insane in Maryland.—In its twenty-fourth annual report, the State Lunacy Commission urges a bond issue of $500,000 to provide necessary buildings, etc., for the state care of the insane.——According to Dr. Arthur P. Herring, secretary of the State Lunacy Commission, there are 1,816 insane in the state hospitals, 924 in private sanitaria, 788 in asylums, and 88 in almshouses. There has been an increase during the year of 111.

Society Meetings.—The following officers were elected by the Prince George's County Medical Society at its annual meeting in Hyattsville, January 11: President, Dr. Guy W. Latimer,

Hyattsville; secretary, Dr. Henry B. McDonnell, College Park; treasurer, Dr. Arthur O. Etienne, Jr., Berwyn; delegate to the state society, Dr. Charles A. Fox, Beltsville, and alternate, Dr. Lewis A. Griffith, Upper Marlboro.——Allegany County Medical Society, at its annual meeting in Cumberland, January 12, elected the following officers: President, Dr. Emmett L. Jones, Cumberland; vice-president, Dr. Algernon G. Smith, Midland; secretary-treasurer, Dr. Charlotte B. Gardner, Cumberland; censor, Dr. Thomas W. Koon, Cumberland; delegates to the state society, Drs. Timothy Griffith, Frostburg, and John E. Legge, Oakland, and alternates, Drs. J. Marshall Price, Frostburg, and Henry W. McComas, Oakland.

Baltimore

Deaths from Violence in 1909.—During 1909, there were 288 fatal accidents in Baltimore. Of these 57 were due to drowning, 48 to burns, 37 to railway injuries, 20 to street car injuries, 15 to falls, 8 to accidental poisoning, and 95 to suicide.

To Aid Widows and Orphans.—A concert, supper and sale is to be held in the new Medical Hall, February 2 and 3, for the benefit of the Ladies' Auxiliary of the Widows' and Orphans' Fund of the Medical and Chirurgical Faculty of Maryland.

Personal.—Dr. George B. Reynolds, a police surgeon, has been detailed to instruct the police in first-aid.——Drs. Henry M. Baxley, Edward E. Mackenzie and Edmund A. Muñoz have been reelected attending physicians to the Baltimore General Hospital.——Dr. Harry Adler has been reelected president of the Hebrew Hospital.——Dr. Harry Friedenwald has been elected president of the Jewish Home for Consumptives.——At a reception given by the Board of Lady Managers of the Presbyterian Eye, Ear and Throat Charity Hospital, January 10, in honor of the thirtieth anniversary of the connection of Dr. Herbert Harland with the institution, a silver loving-cup was presented to Dr. Harlan.

The Work Against Tuberculosis.—The Maryland Association for the Prevention and Relief of Tuberculosis recommends the establishment of a municipal dispensary for tubercular patients, and urges the legislature to appropriate at least $10,000 a year for the antituberculosis work of the State Board of Health. It recommends the separation of the Hospital for Consumptives from Bayview Asylum (the city almshouse), and the increase of the capacity of the hospital to 500 beds. It also recommends the establishment under the board of managers of the State Tuberculosis Sanatorium of a farm colony for colored consumptives. During last year the traveling exhibit of the association visited every county in the state; 267 free lectures were given before about 130,000 persons; 126,500 separate pieces of literature were distributed, local associations were organized in four counties, and a special tuberculosis dispensary was maintained at Fell's Point in southeast Baltimore.

MISSISSIPPI

Personal.—Dr. Albert G. McLaurin, Brandon, has been elected physician to the Rankin Prison Farm; Dr. McCallum has been reelected physician of the Sunflower Farm, and Dr. Christmas of the Belmont Farm.——Dr. Nolan Stewart has been appointed superintendent of the Mississippi Insane Hospital Asylum, vice Dr. Thomas J. Mitchell, to take effect on Dr. Mitchell's retirement, May 3.——Drs. Taylor H. Henry and William H. Cryer have been elected members of the board of health of Columbus.

Society Meetings.—At the annual meeting of Jefferson County Medical Society, held in Fayette, December 7, Dr. Daniel C. Warren, Perth, was elected president; Dr. William H. H. Lewis, Fayette, vice-president; Dr. John C. McNair, Fayette, secretary; Dr. Sherrod R. Towns, Union Church, delegate to the state association, and Dr. G. T. Warren, alternate.——At the meeting of the Winona District Medical Society, held in Winona, January 4, the following officers were elected: Dr. James O. Ringold, Vaiden, president; Drs. John W. Young, Grenada, James P. Wiggins, Eupora, Henry J. Small, Winona, and Graham W. Diggs, Black Hawk, vice-presidents, and Dr. John W. Banksdale, Vaiden, secretary-treasurer (reelected).——At the annual meeting of Adams County Medical Society, held in Natchez, January 4, Dr. McDonald Watkins was elected president; Dr. John W. D. Dicks, vice-president; Dr. Jacob S. Ullman, secretary; Dr. Richard D. Sessions, delegate to the state association, all of Natchez, and Dr. Paul L. Bellenger, censor.——The Brookhaven Doctors' Club, at its annual meeting, held December 28, elected Dr. Norman A. McLeod, president; Dr. Oscar N. Arrington, vice-president, and Dr. Dudley W. Jones, secretary.——Forest County Medical Society, at its annual meeting in Hattiesburg, elected Dr. Emmett Dill, president; Dr. Prentiss A. Carter, vice-president; Dr. Fern Champenois, secretary-treasurer; Dr. Lawrence D. Hudson, councilor; Dr. Isham H. C. Cook, delegate to the state association, and Dr. Leonidus H. Martin, censor, all of Hattiesburg.

NEBRASKA

Money for Health Bureau.—Health Commissioner Connell, Omaha, has made requisition for $28,000 for the use of the health department for the coming year. Last year $16,900 was apportioned for the use of the department.

Site for Medical School.—Formal transfer of six lots at Forty-second and Jackson streets, Omaha, has been made to the regents of the University of Nebraska, and the site will be used as a location for the new medical school of the university.

Personal.—Dr. Lawrence T. Moore, Campbell, recently suffered the loss of a hand by the accidental discharge of a shotgun.——Dr. Sherman J. Jones, Minden, has returned from Europe.——Drs. Radfield and Josiah R. McKirahan, Grand Island, have assumed charge of a hospital at North Platte.

Election.—Saline County Medical Society, at its recent meeting in Crete, elected Dr. Francis J. Stejskal, Crete, president; Dr. Howard W. Quirk, Crete, vice-president, and Dr. George E. Henton, Friend, secretary-treasurer.——York County Medical Society, at its annual meeting, elected Dr. Orville M. Moore, York, president; Dr. John W. Meehan, York, vice-president, and Dr. James N. Plumb, York, secretary-treasurer.

NEW HAMPSHIRE

Society Meetings.—The sixth annual meeting of the Grafton County Medical Society was held in Woodsville, December 14, and the following officers elected: President, Dr. Frank A. Smith, Lebanon; vice-president, Dr. William E. Lawrence, North Haverhill; secretary-treasurer, Dr. George A. Weaver, Warren; censor, Dr. George W. Hazleton, Haverhill; member of committee on public health and legislation, Dr. Claude M. Sneeden, Littleton; delegates to the state society, Drs. Edward O. Crossman, Lisbon, and Charles R. Gibson, Woodsville, and alternates, Drs. Elmer H. Carleton, Hanover, and Elmer M. Miller, Woodsville.——At the annual meeting of the Nashua Medical Society, held January 6, the following officers were elected: President, Dr. Herbert L. Smith; vice-presidents, Drs. William E. Reed and Arthur L. Wallace; secretary, Dr. Eva M. Locke; treasurer, Dr. Patrick J. McLaughlin, and historian, Dr. Charles B. Hammond.

Hospital Staff Organized.—The augmented staff of the Notre Dame Hospital, Manchester, has organized with the following officers and members: President, Dr. Gustave Lefontaine; vice-president, Dr. Evariste C. Tremblay; secretary, Dr. Leon J. Lacassee; surgeons, Drs. Joseph E. Larochelle, Noel E. Guillet, Frederick H. Perkins, George S. Foster and Wilfred L. Biron; physicians, Drs. Gustave Lefontaine, Edouard N. Fugere, Irving L. Carpenter, J. R. Pepin and Leon J. Lacasse; specialists, Dr. Evariste C. Tremblay and Alfred A. Macleay, and pathologist, George A. Foster.

NEW JERSEY

Personal.—Dr. S. Leslie West severed his connection with the Westmont Hotel and Sanitarium Company, Atlantic City, November 24 last.——Dr. Richard M. Davis has been reappointed a member of the Salem Board of Health.——Drs. W. Scott Smith and Ellen B. Smith, Salem, will sail for Europe February 1.——Dr. Harry J. Moss, of Woodbine, has been appointed assistant superintendent of the Mount Sinai Hospital, New York City.——Dr. N. Howard Burt has been elected president of the Ocean City Board of Health.——Dr. Henry B. Diverty has been made secretary of the newly organized Board of Health of Woodbury.

Society Meetings.—At the annual meeting of Monmouth County Medical Society, held in Freehold, December 14, the following officers were elected: Dr. Harry B. Slocum, Long Branch, president; Dr. Peter P. Rafferty, Red Bank, vice-president; Dr. Edwin Field, Red Bank, secretary; Dr. Isaac S. Long, Freehold treasurer; Dr. Peter P. Rafferty, recorder, and Drs. Isaac S. Long, Freehold, Harry B. Slocum, Long Branch, and D. Edgar Roberts, delegates to the state society.——At the annual meeting of the Camden City Medical Society, January 4, the following officers were elected: President, Dr. William H. Pratt; vice-president, Dr. Joseph W. Martindale; secretary, Dr. William I. Kelchner; treasurer, Dr. Joseph H. Wills; and historian, Dr. Albert B. Davis.

NEW YORK

Convalescent Home for New York Poor.—The people of Otisville have purchased a farm of 140 acres near the village and have stocked it for the purpose of establishing a home for convalescent women and children of New York City in the summertime and to help sick mothers in the winter.

Annual Meeting of State Society.—The one hundred and fourth annual meeting of the Medical Society of the State of New York will be held in Albany, January 25 and 26, under the presidency of Dr. Charles G. Stockton, Buffalo. The program includes symposiums on vaccine therapy and appendicitis. The annual banquet will be held at the Hotel Ten Eyck, January 26.

County Laboratory Established.—The Monroe County Pathologic Laboratory has been established in Rochester under the charge of Dr. Charles Hennington. Monroe is the fifth county in the state to take advantage of the enabling act, making provision for the more accurate laboratory diagnosis of such diseases as tuberculosis, diphtheria and typhoid fever, in order to safeguard the public health of country communities.

Ophthalmia Neonatorum.—Dr. Eugene H. Porter, State Commissioner of Health, reports that the bureau in the state department created a year ago to forward the work among physicians for the prevention of blindness among the newborn has accomplished excellent results. Registered physicians throughout the state have pledged themselves to the use of silver nitrate solution sent out by the health department. The New York Committee on Blindness is cooperating with the State Health Department.

Need of Efficient Surgery in Prison.—The report of the State Prison Commission just made public states that proper medical attention can do more to reform some convicts than prisons. Sing Sing's hospital department, under Dr. Lettice, has been materially improved, particularly in the surgical department. It is urged that every prison should supply its surgeon with modern appliances, an assistant physician and a trained nurse, as one of the serious troubles in state prisons is that ample attention has not been paid to diseases amenable to surgery among convicts. Unfortunates are released from prison with physical imperfections which handicap them in their struggle for a livelihood. The commission reports conditions in a number of the station houses and prisons as regards cleanliness and sanitation that are a disgrace to those responsible for them.

Insurance Company May Erect Sanatorium.—Superintendent Hotchkiss of the State Insurance Department announces that the department has approved the application of the Metropolitan Life Insurance company for permission to purchase land in Westchester county to build and maintain there a tuberculosis sanatorium for its employees who may be afflicted or threatened with tuberculosis. When application for the establishment of such a sanatorium was made some months ago, the superintendent doubted whether under the charter of the insurance company such a step would be legal. A friendly suit was begun in the supreme court to decide whether this purchase of land was "necessary for its convenient accommodation in the transaction of its business," as the insurance law stipulates in regard to the purchase of real estate by insurance companies. The court declared that the superintendent had the right to approve or reject the application at his discretion.

Work of State Charities Aid Association.—At the annual meeting of the State Charities Aid Association it was stated that the work of this organization for the suppression of tuberculosis was beginning to be apparent, though statistics did not as yet show much decrease, which was probably due to a more truthful assignment of that cause of death where formerly other causes had been assigned. There are still 15,000 deaths annually in this state from tuberculosis. The almshouse has become a diminishing factor in the charities problem. During the thirty years from 1878 to 1908 the inmates of almshouses actually decreased from 7.1 per cent. to 6.7 per cent. In the same period the inmates of state institutions for curative treatment of special diseases, reformatory treatment and custodial care of permanent defectives increased from 3,000 to 36,000, of whom 27,000 are in state hospitals for the insane. The association has at present 70 anti-tuberculosis committees in the state with a membership of over 3,000. Tuberculosis exhibits were sent to 41 county fairs and to the state fair. Last year 511 persons were received in the insane asylums from penal institutions. At present the insane are increasing at the rate of 1,000 a year.

New York City

New Health Commissioner.—Dr. Ernest J. Lederle has been appointed Health Commissioner to succeed Dr. Darlington. The complaints that Brooklyn did not receive sufficient attention during the last administration will receive attention. Dr. Lederle will spend a part of three days every week in the Brooklyn office where he will be ready to hear suggestions for the improvement of the service in that borough.

Gifts to Charity.—At the last meeting of the trustees of Columbia University it was announced that $10,000 had been received for the equipment of the medical and engineering schools, and William K. Vanderbilt, Clarence H. Mackay and Alexander Smith Cochran each gave $2,500 for special maintenance. The university hopes to erect a building for cancer research in the near future.——Mr. John Berwind of New York and Newport has donated $100,000 to the Maternity Outdoor Clinic on East Seventy-sixth street.——By the will of Mitchell Valentine the Presbyterian and Hahnemann Hospitals will each receive about $900,000.

NORTH CAROLINA

Violates Revenue Laws.—Dr. S. A. W. Hayes, Rutherfordton, is said to have been sentenced to fifteen months' imprisonment in the federal prison for violation of the internal revenue laws, and also to have been fined $100.

Personal.—Dr. John R. Williams, Greensboro, president of the antituberculosis association, who has been seriously ill with typhoid fever, is reported convalescent.——Dr. W. G. Bradshaw, High Point, has been seriously ill with ptomain poisoning.

Tri-County Society Meeting.—The Medical Society of Pasquotank, Camden, and Dare counties, met January 6 in Elizabeth City and elected the following officers: President, Dr. Claude B. Williams; vice-president, Dr. Charles W. Sawyer, and secretary-treasurer, and delegate to the state society, Dr. Isaac Fearing, all of Elizabeth City.

OHIO

Medical Student Dies.—Harry T. Simmons, a junior student at the Western Reserve Medical College, Cleveland, fell in a hospital clinic recently, sustained a fracture of the base of the skull, and died on the operating table.

Reinstated in Practice.—At a meeting of the State Board of Medical Examination and Registration in Columbus, January 4, Dr. James N. Nelson, Alliance, was reinstated as a practitioner without restrictions. The action was taken on recommendation of the Stark County Medical Society.

Physician Freed by Jury.—The Clermont county grand jury, which, on October 21, returned an indictment against Dr. John D. Wakefield, Loveland, for perjury, based on testimony given by the physician in a damage suit against the Baltimore and Ohio Southwestern Railway, acquitted him December 24, after a four days' trial in the common pleas court.

Society Meetings.—At the annual meeting and banquet of the Columbus Woman's Medical Club, December 7, Dr. Susanna L. Bryant was elected president; Dr. Ida M. Wilson, vice-president, and Dr. Marinda E. Blackburn, secretary-treasurer.——Dr. John S. Tierney has been elected chairman, Dr. Willard C. Stoner, vice-chairman, Dr. Hiram B. Ormsby, secretary, and Dr. Samuel L. Bernstein, councilor, of the clinical and pathologic section of the Cleveland Academy of Medicine.

Health Officers to Meet.—The annual Conference of the State Board of Health and City and Village Boards of Health will be held in Columbus, January 20 and 21. Among the speakers will be Dr. Cressy L. Wilbur, chief of the vital statistics division of the Census Bureau, Surgeon Leslie L. Lumsden, P. H. and M.-H. Service, Dr. William C. Woodward, health officer of the District of Columbia, Rufus B. Miles of the Bureau of Municipal Research, Cincinnati, and Dr. Luther H. Gulick, New York City.

Limit Itinerant Medicine Vending.—A bill prepared by the state pharmacy board and the state association of pharmacists, to prevent itinerant vending of medicine, which will be presented to the legislature, provides that before any person or firm may sell medicine from house to house a license costing $250 must be obtained from the board, and applicants must satisfy the board that medicines are not dangerous to life. For sale without license a fine of from $100 to $200 is imposed, and for the second conviction, a fine of from $200 to $400.

Academy Election.—At the annual meeting of the Cincinnati Academy of Medicine, held January 3, the following officers were elected: President, Dr. Samuel E. Allen; vice-presidents, Drs. Robert Carothers and William D. Porter; secretary, Dr. E. Otis Smith; treasurer, Dr. Alexander G. Drury; librarian, Dr. Arch I. Carson; trustee, Dr. Asa B. Isham; censor, Dr. Edwin W. Mitchell; delegate to the state association, Drs. Magnus A. Tate, Charles L. Bonifield and William D. Haines; member of the auxiliary committee of public safety and legislation of the Ohio State Medical Association, Dr. Charles A. L. Reed; and delegates to the Antituberculosis League, Drs. Benjamin F. Lyle, Allan Ramsey and John H. Landis.

May Not Practice in Ohio.—The decision is said to have been reached by the governor and the attorney general who make up the board of appeals from decisions of the State Board of Medical Registration and Examination on December 14, that it has no jurisdiction to compel the board to grant an Ohio certificate to Dr. Reuben G. Woodworth, Colorado City, under the reciprocity arrangement with the State Board of Medical Examiners of Colorado, where Dr. Woodworth practiced after leaving Columbus. The question involved is the failure of the Colorado board to testify in the reciprocity certificate as to the character and fitness of the physician certified.

Bills on Behalf of State Board of Health.—Dr. Charles O. Probst, Columbus, secretary of the State Board of Health, has prepared three bills to be introduced in the legislature, the first authorizing the establishment of a bureau for the prevention of infectious diseases, and providing for the division of the state into not to exceed twelve districts, with the appointment of a properly qualified physician as medical inspector for each district to enforce health and sanitary regulations; the second authorizing the State Board of Health to manufacture antitoxin for the cure and prevention of diphtheria for free distribution, and the third providing that all school children shall be examined annually by their teachers and tested for sight, hearing and obstruction of breathing.

Fined for Violations of Law.—In the case of Dr. Francis M. Murray, Delaware, charged with violation of the Rose law in the issuance of prescriptions for liquor, the defendant is said to have been found guilty and fined $250 and costs. The judge, in his decision, called especial attention to the fact that the person who had procured the prescription did not state that he was ill, but simply asked for liquor. It was shown that the defendant had issued nearly 1,000 prescriptions during the previous two months.——Dr. N. V. Speece, Quincy, charged with issuing illegal prescriptions for liquor, is said to have been found guilty and fined $250 and costs, and prohibited from writing prescriptions for liquor for two years. ——George H. Schubert, a real estate agent of Springfield, is said to have been fined $25 and costs, December 14, for the illegal practice of medicine.

PENNSYLVANIA

Sale of Christmas Stamps.—J. Byron Deacon, executive secretary of the Pennsylvania Society for the Prevention of Tuberculosis, has issued a statement that although the report of the sale of Red Cross Christmas stamps is as yet incomplete, it is safe to say $20,000 had been raised outside of Pittsburg and that $5,000 has been secured in that city.

Officers Elected.—At the meeting of the Delaware County Medical Society, held in Chester, January 14, the following officers were elected: President, Dr. Francis N. Baker, Media; vice-president, Dr. D. Forrest Harbridge, Chester; secretary, Dr. Charles I. Stiteler, Chester; treasurer, Dr. Daniel W. Jefferis, Chester; reporter, Dr. Walter E. Egbert, Chester; librarians, Drs. Samuel Trimble, Newtown Square, and Amy E. White, Chester; censors, Drs. J. Harvey Fronfield, Media, Frederick H. Evans, Chester, and Horace F. Taylor, Ridley Park, and district censor, Dr. Daniel W. Jefferis, Chester.—— The Lancaster County Alumni Association of the University of Pennsylvania held its annual meeting in Lancaster, January 1 and elected Dr. William H. Trout, president, Dr. William G. Fox, vice-president, and Dr. Charles P. Stahr, secretary-treasurer.

Philadelphia

Bequests.—The will of the late Anna E. Porter bequeathes $10,000 to the Methodist Hospital for a free room to be known as the "Porter Memorial."

Personal.—The degree of doctor of laws was conferred on John Herr Husser, M.D., professor of clinical medicine in the University of Pennsylvania by Franklin and Marshall College, Lancaster, Pa., January 7.

Appropriations to Hospitals.—During the last fifteen years the Medico-Chirurgical Hospital has received in state appropriations $1,350,000, Jefferson $1,275,000, and the University Hospital $970,000. The Medico-Chirurgical received $670,000 for improvements in the same period, Jefferson $550,000, and the University $125,000.

Physicians' Motor Club.—At the initial banquet of the newly formed Physicians' Motor Club, held January 11, a movement was started to have the same police regulations now governing ambulances apply to doctors' automobiles. The following officers were elected: President, Dr. S. Leon Gans; vice-presidents, Drs. L. Webster Fox, Edward E. Montgomery and Solomon Solis-Cohen; secretary, Dr. Sylvester J. Deehan, and treasurer, Dr. J. Gurney Taylor.

Doctors War on Smoke Nuisance.—A movement to do away with the smoke nuisance has been started by the physicians of this city under the leadership of Dr. S. Weir Mitchell. It will be supported by the county medical society, the civic and business men's associations and the Department of Health and Charities. Better standards have been attained in both food and water in the last few years, but the supply of air has deteriorated, particularly since the coal strike in 1902, by the increased use of bituminous coal as fuel within the city limits. The recent snow storm has served to show how the smoke from the chimneys, locomotive stacks and factory funnels permeates the air before it finally settles.

Faith Curist Convicted.—For permitting his 6-year-old son to die without medical attention, Thomas A. Gibson was convicted of involuntary manslaughter in Quarters Session Court before Judge Kinsey, January 6. Gibson is a follower of a self-styled "divine healer" of Faith Tabernacle at Second street and Lehigh avenue. Dr. Jesse A. Bolin, former coroner's physician, testified that the child had been suffering from chronic nephritis with edema that had distended the abdomen almost to bursting. This condition had existed for three months and when the child's abdomen was tapped in performing the autopsy, three gallons of water were removed. The defendant's only excuse was that he did not believe in doctors.

Officers Elected.—At the meeting of the Northern Medical Association, held January 14, the following officers were elected: President, Dr. William A. Brady; vice-presidents, Drs. Thomas Shriner and O. Luther Latchford; treasurer, Dr. John W. Millick; secretary, Dr. Paul F. Bremer; censor, Dr. Albert Bernheim; corresponding secretary, Dr. Thomas R. Currie; and librarian, Dr. Howard D. Geisler.——At the meeting of the Pediatric Society held in the College of Physicians on January 11, the following officers were elected: President, Dr. Charles A. Fife; vice-presidents, Drs. James T. Rugh, Theodore Le Boutillier and Arthur Newlin; treasurer, Dr. Howard C. Carpenter; librarian, Dr. Charles F. Judson; and secretary-recorder, Dr. Maurice Ostheimer.

TEXAS

Personal.—Dr. Louis H. Kirk has been appointed health officer of Austin, vice Dr. William J. Mathews, resigned.—— Dr. B. M. Jones, Boyd, was stabbed in the right lung in an affray, December 17.——Dr. Marshall M. Chandler, Greenville, was presented with a loving cup by the Hunt County Medical Society, in recognition of his long and persistent support of the organization.——Dr. John W. Overton, Lubbock, has been appointed surgeon of the Santa Fe System at Sweetwater.

Society Meetings.—The sixtieth semi-annual session of the North Texas Medical Association, District No. 14, was held at Fort Worth, December 14-16. Dr. Alva W. Carens, Hutchins, was elected president; Dr. Francis M. Teas, Denison, vice-president; Dr. H. Leslie Moore, Dallas, secretary, and Dr. Thomas W. Crowder, Sherman, treasurer. The association adjourned to meet in Sherman in June.——The South Texas District Medical Association, comprising the medical societies of the Ninth and Tenth Councilor districts, met in Galveston, December 9. Dr. William Keiller, Galveston, was elected president; Dr. D. Stuart Wier, Beaumont, vice-president; Dr. Edward F. Cooke, Houston, secretary-treasurer (reelected). Houston was selected as the place for the next semi-annual meeting.——The Seventh Councilor District Medical Society held its annual meeting in Austin, December 16, and elected the following officers: Dr. Washington A. Harper, Austin, president; Dr. Lewis B. Bibb, Austin, secretary-treasurer, and Drs. Edward M. Thomas, Georgetown, S. E. Hudson, Austin, Benjamin M. Worsham, El Paso, James C. Anderson, Granger, and Howard B. Granberry, Austin, censors.——The physicians of Hale county met at the residence of Dr. J. D. Hanby, Plainview, December 18, and organized the Hale County Medical Society.

VIRGINIA

Elections.—At the annual meeting of the Richmond Academy of Medicine held December 14, the following officers were elected: President, Dr. Charles R. Robins; vice-presidents, Drs. George P. LaRoque, J. Fulmer Bright and Alexander G. Brown; secretary, Dr. W. Brownley Foster; treasurer, Dr. William A. Shepherd, and librarian, Dr. George P. LaRoque. ——Physicians of Augusta county have incorporated the Augusta County Medical Association without capital stock and with the following officers: Dr. John B. Catlett, president; Dr. Hunter B. Spencer, secretary; and Drs. Edwin L. Gibson and Marshall J. Payne, all of Staunton.——Lynchburg Medical Society, at its annual meeting, January 3, elected

Dr. George J. Tompkins, president; Dr. John J. Lloyd, vice-president; Dr. Victor V. Anderson, secretary; Dr. J. Paulett Clark, treasurer, and Drs. James Morrison and Ferdinand M. Perrow, censors.——Petersburg Medical Society has elected Dr. Leverett S. Early, president; Dr. Hampden A. Burke, vice-president; Dr. Julian R. Beckwith, corresponding secretary; and Dr. William C. Powell, secretary-treasurer.

WISCONSIN

Inspection of Sanitation of Students' Quarters.—All boarding and rooming houses occupied by students of the University of Wisconsin are henceforth to be under the inspection of the faculty committee on hygiene, consisting of Dr. Mazyck P. Ravenel, chairman; Dr. W. D. Frost, bacteriologist; Dr. Charles H. Bunting, pathologist; Dr. J. Helen Dobson; Dr. Joseph Erlanger, physiologist; and Dr. A. S. Lovenhart, of the department of pharmacology and toxicology.

Hospital Officers and Staff Elected.—The directors of the Johnston Emergency Hospital, Milwaukee, on January 5, elected the following officers: President of the medical and surgical staff, Dr. Robert G. Sayle; Dr. Daniel Hopkinson, secretary; president of the board of trustees, Dr. Frank B. Golley, and secretary of the board of trustees, Dr. Ralph Elmergreen. The following staff was chosen: Surgeons, Drs. William F. C. Witte, Curtis A. Evans, Frederick J. Gaenpsen, Robert G. Sayle, Henry F. Kortebein, Willard T. Nichols, Ralph Elmergreen, John L. Yates, Ralph P. Peairs, Filip Forsbeck, Daniel Hopkinson, Arthur T. Holbrook, Philip F. Rogers, Gerhard A. Bading, Maurice L. Henderson, William E. Kramer, William A. Sickels, Edward J. Purtell; physicians, Drs. Arthur J. Patek, James D. Madison, Oscar E. Lademann, William Ackerman, Peter Langland, Franklin H. Hagerman, Louis F. Jermain, Lewis C. Tisdale, Rudolf F. Teschan, Milton M. Spitz, Thomas C. Malone, and Alfred L. Kastner; gynecologists, Drs. John T. Scollard, Warren B. Hill, and George A. Carhart; ophthalmologists, Drs. Gilbert E. Seaman, William S. Stanley, and Charles J. Coffey; dermatologists, Drs. Leopold Schiller and Otto H. Foerster; pediatricians, Drs. Lorenzo Boorse, Albert W. Myers and Alfred W. Gray; alienists, Drs. William F. Wegge, William F. Becker, Moses J. White, Frank C. Studley and Richard Dewey; and pathologists, Drs. Wilhelm Becker, George C. Ruhland and Gustave A. Landman.

GENERAL NEWS AND COMMENT

New Hospital for Cebu.—Cebu, P. I., is to have a new hospital of reenforced concrete and of modern construction at a cost of $40,000.

Railway Surgeons Meet.—At the annual meeting of the Chicago Northwestern Railroad Surgeons Association, January 6, the following officers were elected: President, Dr. David S. Fairchild, Clinton, Iowa; vice-president, Dr. G. E. W. Court, and secretary-treasurer, Dr. D. J. Andrews.

Typhus Fever.—Drs. John S. Anderson and Joseph Goldberger, of the staff of the hygienic laboratory of the U. S. P. H. and M.-H. Service, who have been in Mexico since November 1 studying typhus fever, have issued two preliminary reports, the first showing that Mexican typhus fever is not identical with Rocky Mountain spotted fever, and the second paper reports negative results from all cultures.

Hookworm Conference.—The first Hookworm Conference was held in Atlanta, Ga., January 18 and 19. The conference opened with about 500 in attendance and a representation from twelve states. Dr. Henry F. Harris, secretary of the Georgia State Board of Health, was elected temporary chairman and Mr. William Whitford of Chicago, secretary. The foremost speaker on the program was Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, Washington, D. C. A permanent organization was effected under the name "Southern Health Conference." A full report of the conference will appear in THE JOURNAL.

School Hygiene Meeting.—A joint meeting of the American School Hygiene Association, American Physical Education Association, Public School Physical Training Society and the Department of Superintendents will be held in Indianapolis, March 2-4, under the auspices of the Department of Superintendents of the National Educational Association. Dr. John H. Musser, Philadelphia, is president and Dr. Thomas A. Storey, New York City, secretary of the American School Hygiene Association; Dr. George L. J. Meylan, New York City, is president, and Dr. James H. McCurdy, secretary, of the American Physical Education Society, and Dr. C. Ward Crampton, New York City, president of the Public Schools Physical Training Society.

Coming Meetings.—The twelfth annual association of the Tri-State Medical Society of the Carolinas and Virginia will be held in Richmond, Va., February 15, 16 and 17, under the presidency of Dr. LeGrand Guerry, Columbia, S. C. Dr. J. Howell Way, Waynesville, N. C., is secretary of the association. The question of district membership in the American Medical Association is to come up at this meeting.——The International Medical Association of Mexico will hold its fifth annual meeting at Aguascalientes January 25, 26 and 27, under the presidency of Dr. S. H. Hodgson, Tampico. Of the 31 original articles on the provisional program 19 are by physicians from the United States, and 12 from physicians in Mexico.——The fourteenth annual meeting of the Sioux Valley Medical Association will be held in Sioux City, January 20 and 21, under the presidency of Dr. Matthe N. Voldeng, Cherokee, Iowa.

Medical Fraternities Elect.—The fourth annual meeting of the Chi Zeta Chi Medical Fraternity was held in Nashville, December 29-31. The following officers were elected: Dr. Hugh M. Lokey, Atlanta, Ga., Supreme Eminent Grand; Dr. Guy L. Bush, Supreme Deputy Grand; Dr. J. Calhoun McDougall, Atlanta, Supreme Bursar; Dr. Robert G. Stephens, Atlanta, Supreme Historian. Little Rock, Ark., was chosen as place of meeting for next year. The fraternity, which was organized less than seven years ago, now has nineteen chapters with a membership of 700.——The fourteenth annual meeting of the Phi Chi Medical Fraternity was held in Chicago, December 30 to January 1, about 100 delegates from twenty-five of the thirty-four chapters being present. Dr. L. F. Luckie was elected Grand Presiding Senior; Dr. Edward R. Schunk, Grand Presiding Junior, and Dr. Dunning S. Wilson, Louisville, Grand Secretary-Treasurer.

FOREIGN

First Aid in Mexico.—The governor of the Federal District of Mexico formally inaugurated the first-aid to the injured service in the City of Mexico, December 17. Dr. Leopoldo Castro, chief surgeon of the police ambulance department, is in charge of the service. Five physicians, three medical students, three nurses and a number of attendants are in attendance at the headquarters. Horse ambulances are at present used, but two automobile ambulances are being constructed for the use of the service.

Congress of Medicine and Hygiene.—As already announced, the International Congress of Medicine and Hygiene will be held May 25 in Buenos Aires, Argentine Republic. In order to facilitate the contribution of papers and exhibits from the United States, there has been appointed by the president of the congress, Dr. Eliseo Cantón, and the minister of the Argentine Republic at Washington, a committee of propaganda of which Dr. Charles H. Frazier, 1724 Spruce street, Philadelphia, is chairman and Dr. Alfred R. Allen, 111 South Twenty-first street, Philadelphia, is secretary. The congress has been divided into nine sections, each section being represented in the United States by its chairman, as follows:

SECTION 1.—BIOLOGIC AND FUNDAMENTAL MATTERS, Dr. W. H. Howell, 232 W. Lanvale St., Baltimore.

SECTION 2.—MEDICINE AND ITS CLINICS, Dr. George Dock, 528 Walnut St., New Orleans.

SECTION 3.—SURGERY AND ITS CLINICS, Dr. J. M. T. Finney, 1300 Eutaw Pl., Baltimore.

SECTION 4.—PUBLIC HYGIENE, Dr. A. C. Abbott, 4229 Baltimore Ave., Philadelphia.

SECTION 5.—PHARMACY AND CHEMISTRY, Dr. D. L. Edsall, 1432 Pine St., Philadelphia.

SECTION 6.—SANITARY TECHNOLOGY, Dr. W. P. Mason, Troy, N. Y.

SECTION 7.—VETERINARY POLICE, Dr. S. H. Gilliland, Marietta, Pa.

SECTION 8.—DENTAL PATHOLOGY, Dr. G. V. I. Brown, 349 Prospect Ave., Milwaukee, Wis.

SECTION 9.—EXHIBITION OF HYGIENE, Dr. A. C. Abbott, 4229 Baltimore Ave., Philadelphia.

It will not be necessary for one contributing a paper or exhibit to be present in person. Arrangements will be made to have contributions suitably presented in the absence of the author. Members of the following professions are eligible to present papers or exhibits: medicine, pharmacy, chemistry, dentistry, veterinary medicine, engineering and architecture. Papers may be sent direct to the chairman of the particular section, or to Dr. Allen, secretary.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 8, 1910.

The Health of London

In the report of the Public Health Committee of the London County Council for 1908, which has only just been published, the marriage, birth and death rates are the lowest on record. For the past forty years the death rate has shown a decline. In 1905 the death rate was 15.1 per 1,000, the lowest then recorded; in 1906 it was the same; in 1907 it fell to 14.6, and

in 1908 it reached its lowest point, 13.8. With regard to infant mortality, the number of deaths per 1,000 births is the lowest recorded. Moreover, the infant mortality for the last decennium is lower than in all save one of the thirteen other large English towns, and in 1908 was lower than in any of them. In 1908 the notification of births act passed in 1907 was adopted in all but eight of the London boroughs. The houses in which the births had taken place were visited by women sanitary inspectors or "health visitors." In some districts this work was supplemented by that of a staff supplied by voluntary local health societies. In some of the boroughs "consultative centers" have been instituted, to which mothers bring babies who need special attention. Advice is given as to treatment and the progress of the child is watched. In 1908 the death rate from epidemic disease was also the lowest on record. No death occurred from smallpox, and the deaths from measles, whooping-cough, diphtheria, typhoid fever, diarrhea and phthisis were below the average for the last ten years, but the deaths from scarlet fever and influenza were above the average.

The Increase of Cancer

A gloomy feature of the registrar general's report on the vital statistics of England and Wales for 1908, which has only just been published, is the alarming increase in the death rate from cancer. From 0.55 per 1,000 of the population in the quinquennial period 1881-85, the rate has continually risen until it attained 0.92 in 1908. An international table of twenty countries is given, on which the following comment is made: This country occupies an unenviable position with respect to the mortality from cancer, the rate for England and Wales being exceeded in only two European countries—Switzerland and the Netherlands. Scotland occupies a slightly better position (fourth), and Ireland, notwithstanding its abnormal age constitution, a much better position (seventh, with a rate of 0.76). In all the countries from which returns have been received the mortality from cancer has shown a general tendency to increase in recent years. There is one satisfactory feature: there has been a cessation of the increase in women under 55.

The Medical Profession in 1910

The total number of physicians on the medical directory for 1910 is 40,558—an increase of 566 on the previous year. This number includes only those who have qualified in this country and not those who have done so at the colonial medical schools of Australia and Canada. In 1901 the number on the directory was 36,354, and the increase on the previous year was 703. Since that year the annual increase has fallen off, reaching a minimum of 289 last year, but, as the figures given above show, the annual increase again tends to rise.

The Administration of Anesthetics by Dentists

As shown in previous letters, the question of death under anesthetics has attracted much public attention, and legislation restricting the administration of anesthetics to qualified medical practitioners and ensuring better training in administration is foreshadowed. A controversy now exists as to whether dentists should be permitted, as they are at present, to administer nitrous oxid for dental operations. It is argued that as anesthetics are a necessary part of the dental curriculum, dentists are perfectly competent to administer nitrous oxid for dental operations, and that, moreover, they have much more experience and therefore greater skill in this administration than the average physician. A dental writer discussing the question in Guy's Hospital *Gazette*, says that the persons most desirable for the administration of an anesthetic for dental purposes are in the following order: First, the most desirable is the professional anesthetist. Second comes the operating surgeon, provided he is in the habit of administering anesthetics. He is essentially a practical man, his work is manipulative, and he is particularly adapted to tackle emergencies, such as those requiring laryngotomy or tracheotomy, which he can do even better than the professional anesthetist. Third, comes the dentist, provided he is in the habit of administering anesthetics. His work also is manipulative. He is used to manipulating the patient's mouth and can manage the gag well. Last comes the ordinary physician. Many of them do not known how to administer gas. They cause the patient to become badly cyanosed or too much clonic spasm, and they spoil the dental operation at "the change over," not being able to manage the gag.

The Diminishing Birth Rate: The Survival of the Unfit

Speaking at a diocesan conference the Bishop of Ripon dealt with the question of the diminishing birth rate. It was, he said, the stronger, the sturdier, the better men who refused to have families. The dwindling population of England meant that we would become less and less a power of the first rank in the world. Those who were increasing the more rapidly were not the most desirable citizens. The unfit and the diseased were increasing rapidly, while the best classes were not increasing. If a man from a physical or moral deficiency was not likely to be a useful father of a family it was better that he should not be so. Most physicians agreed that the feeding, clothing and medical treatment of children although of great advantage to the individual, only perpetuated the evil and some went so far as to maintain that as the state is taking over the responsibility for these weaklings antenuptial medical examination would have to be seriously considered. For if it was the duty of the state to look after the infant after its birth it should insist that its conception should take place under favorable circumstances.

The Recognition of a Special Class of Consultants

The central ethical committee of the British Medical Association has issued an important report on the recognition of a special class of consultants. The committee considers that the extraordinary development of specialism in the last 25 years ought, if properly organized, be of great advantage to the community. But without proper guidance a patient is able rarely to select the form of specialism best suited to his requirements. His difficulties are great, since medical specialism is determined not only by particular study of different parts of the body (such as the eye, ear, etc.), but of different therapeutic measures (such as surgery, pharmacology, electricity, etc.) of different therapeutic pathological processes (bacteriology and chemical pathology) and of different methods of diagnosis (hematology, radiography, etc.). It is therefore a very perplexing question for the patient what sort of specialist can best assist him. These questions would be much more easily answered if specialists would act as pure consultants and treat patients only in cooperation with their ordinary medical attendants. On the one hand, the ordinary attendant would much more freely confer in a difficult case with colleagues who would under no circumstances become his competitors. Moreover the patient would have the advantage that his medical attendant is a much better judge than he in the selection of a specialist. Such pure specialism is rare and seems to be growing only very slowly. Specialists of all sorts from the most eminent leaders of the profession downwards are in nearly all cases accessible to the direct call of the public. By concerted action of the British Medical Association it is hoped that the desired change could be brought about, which would be financially beneficial to both branches of the profession. For any loss of work by the specialist from abandoning non-consultative work would, it is contended, be counterbalanced by an increase in the number of consultations and, if necessary, by an increased fee. On the other hand, the general practitioner would be protected against the loss, temporary or permanent, of his most interesting cases. The relations which should exist between a class of pure consultants and their professional brethren could be defined by "regulations" drawn up by the association. The scheme has certainly much to be said in its favor but its difficulties do not seem to have received adequate consideration from the committee. Most specialists would object to the proposal that they should be forbidden to receive patients who wished to consult them unless the approval of some general practitioner had been obtained, and, on the other hand, the public would also object to such restriction. Further an increased cost of medical services would not be viewed by the public with the same satisfaction as the committee. No doubt by regulations fees could be standardized and made compulsory but the economic law that an increased cost diminishes the demand cannot be questioned. All but the wealthy would try to avoid the increased expense by usual methods—irregular practitioners, nostrums, etc.

Success of the Campaign Against Sleeping Sickness

The energetic campaign against the scourge of Uganda has borne fruit. Segregation camps were established for those suffering from sleeping sickness in order to stop the source of infection of the tsetse fly. But the clearing of the population from an area around the lake in which the fly was found to flourish proved more effective. Practically all the fly-infested places have been cleared and the population has been settled in healthy places. At the same time in many places the vegetation in which the fly thrives has been removed and the insect has disappeared. The result of these measures, which were carried out at a cost of $90,000, is that while between 1898 and 1906 more than 200,000 natives died from sleeping

sickness in two of the Uganda kingdoms, only 5,000 died in 1907, 3,662 in 1908, and 459 in the first six months of 1909. On the other hand, the atoxyl treatment of Koch has proved a failure. The task of eradicating the disease, however, is far from complete. There are many thousands in the segregation camps who are neither dying nor being cured, and have to be maintained at great expense in strict isolation. Then there is the population, removed to its temporary abodes, which cannot yet be allowed to return to their lands, owing to the uncertainty as to how long the flies are capable of conveying infection. Nevertheless, the work done reflects great credit on the British colonial administration.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 31, 1909.

Laboratory for the Study of Radioactivity

The council of the University of Paris and the Pasteur Institute have agreed to construct, at the joint expense of the two institutions, a laboratory for the study of the phenomena of radioactivity and their therapeutic applications. The projected laboratory will comprise two parts: one for scientific researches under the direction of Mme. Curie, the other for medical applications under the direction of the Pasteur Institute. The latter will contribute towards the expenses of construction and equipment of the institution the amount of $80,000 (400,000 francs) from the Osiris legacy.

Society of Pediatrics

The first annual meeting of the French Society of Pediatrics, which is now being organized under the auspices of the Paris Society of Pediatrics, is to be held July 29-30, 1910, at Paris.

May a Physician Give Consultations in a City Where He Does Not Reside?

Several medical societies (*syndicats*) have recently given consideration to the question stated above. The *Syndicat de Pont-Audemer* (Eure) has decided to permit its members to resume professional relations with a certain colleague only on condition that the latter discontinue the office that he has opened in a locality where he does not reside. The *Syndicat départemental de la Mayenne* has rendered the decision that every physician has the right to practice and to give consultations on stated days in any locality whatsoever. This creates no difficulty when the locality to which he goes is within the ordinary radius of his practice or nearer to his own residence than to that of any other physician, but in case the locality where he thus practices is within the radius of the practice of another colleague, the *syndicat* permits a physician to give consultations there on a stated day, provided that he does not take fees lower than those of the other practitioners.

Death of Professor Lortet

Dr. Lortet, former professor of medical natural history at the Lyons medical school, has died, aged 74. He was named dean of the school in 1876, and performed the duties of that position for thirty years. He was a correspondent of the Academy of Sciences and national correspondent of the Academy of Medicine. A few years ago Professor Lortet exhumed some skulls of monkeys which bore erosions in which he believed that he recognized signs of syphilis, and the assertion aroused lively controversy in the scientific world.

Prizes of the Paris Medical School

The Paris medical school has awarded the Barbier prize of $400 (2,000 francs) to Dr. Pachon of Paris for his work on the mensuration of arterial pressure in man, and the Jeunesse prize of $300 (1,500 francs) to Dr. Lassablière of Paris for his work on meat powders and on energy requirements in infancy.

Resident Fellowships at Foreign Universities

An anonymous donor has given to the University of Paris an annual income of $6,000 (30,000 francs) to found resident fellowships at foreign universities in favor of young professors, or future professors of higher education. The council of the university has decided that the amount of each fellowship shall be $600 (3,000 francs), and that there shall be ten of them. They will be awarded to doctors in medicine and in law, and to pharmacists who intend to give instruction.

Exposition of Social Hygiene

The exposition of social hygiene organized by the committee of patronage of low-priced dwellings, opened December 20, at the Grand Palais. The principal purpose of this exposition is a competition between French and foreign architects, engineers, builders, contractors, and manufacturers, which will permit the selection of the most hygienic and economical methods and systems meeting the requirements of low-priced dwellings. The competition is divided into five classes: (1) economical and hygienic materials of construction; (2) heat; (3) lighting; (4) low-priced furniture; and (5) miscellaneous. A house completely built and furnished with all modern improvements demonstrates to the visitors the application of the various products shown. An economical laundry works in view of the public. To make the benefits of the improvements recommended by the committee still further appreciated a series of lectures will be held by the most influential members of the French Society for Low-Priced Dwellings, the League Against Alcohol, the associations for the protection of infancy, etc. In order to encourage the widest use of the hygienic inventions, the admission to the exposition is free.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 28, 1910.

The Puro Meat Juice Suit

It was established chiefly by Gruber of Munich more than a year ago that the food "puro" widely advertised as pure meat juice was nothing more than meat extract mixed with white of egg. On the basis of this publication the state's attorney instituted a suit for fraud against the manufacturer of puro, Dr. Scholl, and the trial took place a few days ago. Dr. Scholl at the trial claimed that it was his purpose to drive out the high-priced American meat extracts by cheaper preparations of equal value. As his attempts to prepare a permanent meat juice from raw meat failed on account of the high price of meat and on account of the disagreeable taste, he resorted to a combination of meat extract with white of egg, since the latter is physiologically equivalent to the albumin of meat. That the preparation was advantageous both on account of its taste and of its action, was shown not only by the favorable opinion of physicians but also by the large sale of the preparation which amounted to 495,000 bottles per year before the exposure by Professor Gruber. He endeavored to show that the profits were not exorbitant. A number of experts expressed the opinion that fraud has been perpetrated on the public by the statement made on the labels that the preparation was a meat juice obtained by high pressure from lean meat and that the contents of a flask contained the concentrated juice of five pounds of raw beefsteak. Other experts did not agree with this opinion as the nutritive value of the preparation had not been materially affected. The representatives of the accused brought out the fact that Professor Gruber was in the employ of the Liebig Co. The court sentenced Dr. Scholl to a month's imprisonment and a fine of $750 (3,000 marks). The court decided the case on the evidence of fraud but gave no opinion as to the value of the preparation. This decision has still further reduced the sales of puro.

The whole transaction constitutes a satisfactory warning for the manufacturers of food preparations. What its effects will be remain to be seen. Many another preparation, especially among the so-called meat juices, would be subject to similar criticism if its composition was compared with the advertising circulars and its nutritive value estimated from the standpoint of price. [EDITOR'S NOTE: Those interested in American meat juices will find a report in THE JOURNAL, Nov. 20, 1909, p. 1754.]

Legal Regulations of Labor Hygiene

A new trade ordinance went into effect January 1 by which the hours of labor for men and particularly for women are regulated under certain circumstances in a better way than heretofore. An unbroken rest period of at least twelve hours must be allowed to youths and women. The permissible period of labor for women is ten hours and on the day before Sunday and the holidays is limited to eight hours. Women must not be employed after eight o'clock in the evening (formerly half past eight) nor before six o'clock in the morning (formerly half past five) and on Saturday and days before holidays the employment of women must cease at 5 p. m. The provision that women who keep house shall be allowed on request a half hour before the noon recess has been extended to girls under sixteen years of age. The provisions for the safeguarding of puerperal patients have been extended so that women before and after delivery must not be employed for a

total of eight weeks and may not be admitted to work after delivery until it is evident that six weeks have passed since labor. The carrying on of work outside of the factory on Sundays and holidays is forbidden. The permissible overwork for adult women in case of extraordinary pressure of work has been limited in three ways: It may not exceed twelve hours a day and must permit an unbroken rest period of ten hours; it may not extend later than nine o'clock in the evening and it must occur not more than fifty days in the year. In case of accidents the longest period of labor to be permitted for adult women is limited to twelve hours. Before the authorities can permit exceptions to the legal provisions regarding rest periods an opportunity must be given to the laborer to secure an official opinion from the labor committee with reference to the proposed exception.

Sanitary Statistics of the Army

The chief medical officer of the Prussian army has published a pamphlet elaborating the address which he delivered in July, 1909, on the "Sanitary Statistics of the People and Army." Schjerning reaches the conclusion that the military strength of Germany has not been remarkably reduced but that it requires every exertion to keep it at its present level or to improve it. The military strength is dependent on the birth rate and infant mortality. The latter is important because with a high rate of infant mortality, those who survive are often physically below grade. The occupation of those liable to military duty has a relatively smaller influence on their physical constitution and fitness for military service than their extraction and parentage. As a rule the rural population furnishes a greater proportion of suitable soldiers than the city, but the view frequently advanced that agriculture produces a better grade of men than industry is not tenable.

The number dismissed from the German army as unfit for service and invalided (pensioned) has indeed increased, but this does not justify the assumption that the supply is becoming poorer, for the increase in dismissals is explained by a number of circumstances, for instance the introduction of the two year service, more strict requirements in the service, and greater leniency in granting pensions. General weakness constitutes one of the principal reasons for unfitness being found in about one-third of the unfit. In estimating the influence of the school on military fitness v. Schjerning agrees with the conclusions of Schwiening which I have given in a previous letter (THE JOURNAL, Aug. 14, 1909, page 569). The entire amount of sickness in the Prussian army in the last thirty-five years has diminished about 35.2 per cent. Altogether contagious diseases (with the exception of tuberculosis, influenza, parotitis epidemica and tetanus) have diminished from 62.7 per cent. to 3.9 per cent. For decades smallpox has practically disappeared from the army. Nerve and ear diseases form an exception to this fortunate reduction, showing instead an increase. Part of this increase is due to better diagnosis by which the conditions are discovered earlier. As compared with other armies the record of the German army in regard to the morbidity from various infections is very favorable; only scarlet fever occurs more frequently in the German than in other armies with the single exception of that of France. Venereal diseases have fallen off in almost all armies and especially in the Prussian and Bavarian.

The mortality of the army has been reduced in the last thirty-five years about 73 per cent.; in the Prussian it amounts to 2 per 10,000. The suicide rate has been considerably diminished of late years, although it is still greater than in almost all other armies and is only exceeded by that of the Austria-Hungarian. Of every 10,000 men there died by suicide from 1900 to 1904 in the Netherland army, 1.2; in the Russian, 1.3; in the Belgium, 1.5; in the French, 1.8; in the Bavarian, 3.1; in the Italian, 3.2; in the Prussian, 4.2; in the Austria-Hungarian, 9.9. The death rate from suicide in the Prussian corresponds to the rate among men of the same age in the urban civil population.

In discussing the influence on the people of the compulsory military service Schjerning emphasizes its educative influence in sanitary and intellectual matters. The mortality of the male population is less during the third decade of life on account of the influence of army life. An immediate influence is also discernible through the assistance of the sanitary corps in epidemics, the discovery and treatment of physical defects and of unsanitary conditions in particular localities and in certain occupations. The period of service has also a demonstrably favorable influence on the intellectual and moral development of the soldiers by education to greater intellectual activity, clearness and decision in thought and action.

Pharmacology

THE AMERICAN DRUGGISTS SYNDICATE

Its Half-Million Advertising Campaign

The cooperative "patent medicine" concern, known as the American Druggists Syndicate—the A. D. S.—to which we called attention two weeks ago,[1] is consistently fulfilling the destiny of the nostrum exploiter, as we then intimated it would. Until within the past few weeks, the A. D. S. has confined its advertising practically to counter pamphlets, circulars, etc. Now, however, an advertising campaign in which it is said half a million dollars will be expended, has been inaugurated and the pharmacists belonging to this organization are frankly before the public not merely as dispensers of nostrums but also as manufacturers.

Printer's Ink, in describing the American Druggists Syndicate from the advertiser's standpoint and referring to its "patent medicine" department, says:

"There is a remedy for about every physical trouble flesh is heir to and for every phase of every trouble."

Of one of the specialties put out by the A. D. S. and the part this nostrum is expected to play in the "patent medicine" world:

"There is Pelvitone, designed to fight Lydia Pinkham's."

How the various members of this organization will contribute to the half-million fund for advertising is explained in *Printer's Ink* as follows:

"When any local druggist signs a contract for a year's membership, he binds himself to spend at least one dollar a week which shall go for advertising. Often he pays as much as two dollars a week for the fifty-two weeks. That means that in towns having 100 members, $200 will be available weekly for pushing A. D. S. goods. Where possible, the names of druggists in each town are appended to advertising copy."

WHAT IS THE REAL REASON FOR THIS ORGANIZATION?

The advertising campaign is on and in the large metropolitan dailies full-page advertisements appear whose make-up out-peruna's Peruna. Addressed in scare-head type "To the Mayor and Citizens of Baltimore"—or some other city as the case may be—an advertisement tells the public why the American Druggists Syndicate was organized. The reasons given to the public are not altogether in consonance with those more frankly admitted in a small booklet sent out by the organization to the druggists whose membership is solicited. To make use of the "deadly parallel":

WHY THE A. D. S. WAS ORGANIZED

THE REASON GIVEN THE PUBLIC	THE REASON GIVEN THE DRUGGISTS
". . . twelve thousand prominent retail druggists . . . have successfully formed an organization under the title 'American Druggists Syndicate,' one of the purposes of which is to aid the local, state and national governments in their campaign for the protection of the public against impure and habit-forming drugs and medicines."	"The patent medicine business is immensely profitable—but—Where do you come in? What percentage of profit are your sales of "patents" netting you? How would you like to change places? The retail druggists of this country are losing thousands of dollars in profits which should belong to them. Why don't *you* keep *your* share? Could you, alone and unaided, and with limited capital put a "ready-made" medicine of your own on the market, in opposition to any one of the big manufacturers, and make it a national success? No. Could you and five other retail druggists do so? No. Could you and five thousand like you? Yes. Now you have it."
"This organization is the result of the startling revelations and complete exposé recently made by the leading magazines of the country covering the methods of some habit-forming nostrum manufacturers, who were willing to sacrifice life, honor and health for the gratification of their own selfish greed."	"That is one of the many things the American Druggists Syndicate was organized for."

If we accept the heart-to-heart explanation given to prospective members, rather than the spectacular play to the gallery indulged in when addressed to the public, it seems on their own admission that the A. D. S. was organized to allow its members to participate more fully in the unholy profits of the "Great American Fraud."

1. THE JOURNAL A. M. A., Jan. 8, 1910, p. 145; see also Jan. 15, p. 221.

BORROWED DIGNITY

It is rather surprising to find prominently pictured in the most approved "patent-medicine" advertisement style a member of the New York State Board of Pharmacy and the dean of the Brooklyn College of Pharmacy—Dr. W. C. Anderson—as a director and second vice-president of the A. D. S. and the chairman of its so-called formula committee. That the A. D. S. possesses a good advertising asset in the person of a member of the State Board of Pharmacy and the dean of a college of pharmacy cannot be doubted; from a commercial standpoint it is to be congratulated. Those interested in the dignity of the profession of pharmacy as a profession, however, may well doubt whether a state board of pharmacy or a college of pharmacy is to be felicitated in being thus given publicity by such an organization as the American Druggists Syndicate.

Referring again to the "formula committee" of which Dr. Anderson is the chairman, this it should be remembered is the body which is alleged to pass on the value of the "thousands of prescriptions written by the most successful physicians in every state in the Union" and to "select the premium prescription and offer it to the public in a ready-made package." Do the members of the American Druggists Syndicate actually appropriate physicians' prescriptions and send them in to the "formula committee?" If they do, they are grossly betraying the trust which physicians repose in them and in addition are doing an illegal act; if they do not then they are humbugging the public.

ARE DRUGGISTS SOPHISTICATORS?

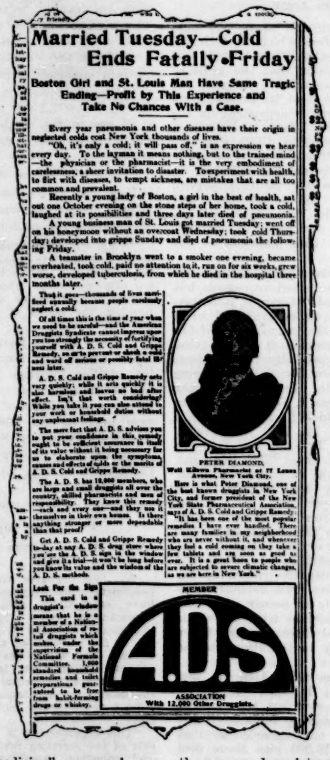
In another advertisement the A. D. S. attempts, by inference, to question the purity of the drugs dispensed by those druggists not numbered among its members. Reference is made to a sensational article which appeared in the yellow press having for its theme the charge that "the medicines dispensed by druggists are still largely adulterated or of inferior quality." The question is then propounded by the A. D. S.: "How is one to know when his doctor gives him a prescription that the druggist has filled it properly?" The answer is, of course, patronize a member of the American Druggists Syndicate! To attempt thus—even if only inferentially—to instill in the mind of the public a distrust for all druggists who have not seen fit to ally themselves with this cooperative "patent-medicine" concern is an uncalled-for insult to the retail druggists of the country.

But as an example of advertising casuistry the following is unique. It appears in the advertisement just referred to:

> "Headache cures of all kinds are very numerous. With the 'guarantee' in the label they look very good to the sufferer. As a matter of fact very few of them are fit to be taken containing as they do *caffein, antipyrin and other harmful drugs.*"—[Italics ours.—ED.]

> "The Government has seized many of these 'sure cures' but the manufacture and sale of them goes on merrily and it is safe to say that as a result more drug habits are contracted than headaches cured."

The full irony of this warning against "caffein, antipyrin and other harmful drugs" becomes manifest when it is appreciated that each of the "A. D. S. Headache Wafers" contains *caffein* and 4 grains of *acetanilid*.



Married Tuesday—Cold Ends Fatally Friday

Boston Girl and St. Louis Man Have Same Tragic Ending—Profit by This Experience and Take No Chances With a Case.

Every year pneumonia and other diseases have their origin in neglected colds and New York thousands of lives.

"Oh, it's only a cold; it will pass off," is an expression we hear every day. To the layman it means nothing, but to the trained mind —the physician, the pharmacist—it is the very embodiment of carelessness, a sheer invitation to disaster. To experiment with health, to flirt with diseases, to tempt sickness, are mistakes that are all too common and prevalent.

Recently a young lady of Boston, a girl in the best of health, sat out one Saturday evening on the stone steps of her home, took a cold, laughed at its possibilities and three days later died of pneumonia.

A young business man of St. Louis got married Tuesday; went off on his honeymoon without an overcoat Wednesday; took cold Thursday; developed into grippe Sunday and died of pneumonia the following Friday.

A steamster in Brooklyn went to a smoker one evening, became overheated, took cold, paid no attention to it, run on for six weeks, grew worse, developed tuberculosis, from which he died in the hospital three months later.

That it goes—thousands of lives needlessly because people carelessly neglect a cold.

Of all times this is the time of year when we need to be careful—and the American Druggists Syndicate cannot impress upon you too strongly the necessity of fortifying yourself with A. D. S. Cold and Grippe Remedy, so as to prevent or check a cold and ward off serious or possibly fatal illness later.

A. D. S. Cold and Grippe Remedy acts very quickly; while it acts quickly it is also harmless and leaves no bad after effects. Isn't that worth considering? While you take it you can also attend to your work or household duties without any unpleasant feelings.

The mere fact that A. D. S. advises you to put your confidence in this remedy ought to be sufficient assurance in itself of its value without it being necessary for us to elaborate upon the symptoms, causes and effects of colds or the merits of A. D. S. Cold and Grippe Remedy.

The A. D. S. has 16,000 members, who are large and small druggists all over the country, of ability, character and men of responsibility. They know this remedy through and every one of them has used it themselves in their own homes. Is there anything more we can say to convince you than this proof?

Get A. D. S. Cold and Grippe Remedy to-day at any A. D. S. drug store where you see the A. D. S. sign in the window and give it a trial—it won't be long before you learn the value and the wisdom of the A. D. S. methods.

Look For the Sign

This card is in every druggist's window means that he is a member of a National Association of retail druggists which makes under the supervision of the National Formula Committee, 1,500 standard household remedies and toilet preparations guaranteed to be free from habit-forming drugs or whiskey.

PETER DIAMOND,
Well Known Pharmacist on 37 Lenox Avenue, New York City.

Here is what Peter Diamond, one of the best known druggists in New York City, and former president of the New York State Pharmaceutical Association, says of A. D. S. Cold and Grippe Remedy:

"It has been one of the most popular remedies I have ever handled. There are many families in my neighborhood who are never without it, and wherever they feel a cold coming on they take a few tablets and say soon as good as ever. It is a great boon to people who are subjected to severe climatic changes, as we are here in New York."

MEMBER
A.D.S.
ASSOCIATION
With 12,000 Other Druggists.

EXTRAVAGANT STATEMENTS

What excuse does the American Druggists Syndicate offer for marketing "patent medicines?"

"All remedies compounded by the syndicate are truthfully represented and advertised."

"No alluring bait is held out to the sick—no extravagant statements or promises made."

How do the claims made for these nostrums measure up to the standard thus set? We give a few of the statements made regarding them and let the medical profession decide whether or not the bait is alluring or the statements extravagant.

PELVITONE: "For frail women who are too modest or too careless to see a physician."

"Is the prescription used by the most eminent and successful physicians."

"Try one bottle and you will recommend it to your afflicted lady friends."

BRAIN AND NERVE TONIC: "A scientific nerve food." "It never fails."

HEADACHE WAFERS: "This prescription cures all headaches and relieves pain."

COLD AND GRIPPE TABLETS: "Will cure your bad cold or grippe very quickly."

RHEUMATIC REMEDY: "Counteracts effects of uric acid in the blood."

KIDNEY REMEDY: "Will restore healthy action to the kidneys."

EFFERVESCENT BROMO HEADACHE SALTS: "Always effective."

BLOOD MIXTURE: "Purifies the blood."

EX-Z-MO: "It will cure eczema."

BEEF, WINE AND IRON: "It makes good, rich blood."

CELERY COMPOUND: "Tones up the nerves and strengthens the brain."

As to the method of presenting the "alluring bait" we reproduce an advertisement — greatly reduced— which expounds the virtues of the "A. D. S. Cold and Grippe Remedy." The superiority—in the matter of conservative and truthful representation—of this advertisement, over those put out by Lydia Pinkham or Duffy's Malt Whiskey concerns may or may not be apparent.

THE KERNEL OF OUR CRITICISM

Once again let it be made plain that for cooperation *per se* there can be nothing but praise. It has always been believed that decent pharmacists have handled "patent medicines" not because they had any faith in them, but because economic conditions made that course practically imperative. Most physicians have thought that the attitude of the druggist toward nostrums has been that of ill-disguised contempt. What is to be thought now that the "patent-medicine" evil has received the stamp of official approval from thousands of druggists simply because these same druggists are to profit therefrom? Are the retail pharmacists of the country about to sell their heritage of professional decency for a mess of pottage—a mess, too, that smells to high heaven?

UNICORN ROOT, WILD YAM AND WILD INDIGO

Report of the Council on Pharmacy and Chemistry

The Council has voted that recognition be refused to the following: Unicorn Root (*Aletris farinosa*), Wild Yam (*Dioscorea villosa*), and Wild Indigo (*Baptisia tinctoria*) and has authorized the publication of the following statements.

W. A. PUCKNER, Secretary.

UNICORN ROOT—ALETRIS FARINOSA

Unicorn Root (*Aletris farinosa*) contains a bitter principle and starch. Remarkable powers as a uterine tonic have been

ascribed to it but have not been realized by reliable observers, the drug being practically valueless in these conditions. It enters into the composition of a number of nostrums. As a bitter it is superfluous and it should not be included among non-official drugs.

WILD YAM—DIOSCOREA VILLOSA

Wild Yam (*Dioscorea villosa*) has been little used in medicine. It contains a saponin and an acrid resin, and is said to possess expectorant, diaphoretic and—in large doses—emetic properties. It has been recommended as a remedy in biliary colic and in muscular rheumatism. Its value in such conditions has not been verified to an extent entitling it to consideration as a useful remedy.

WILD INDIGO—BAPTISIA TINCTORIA

Wild Indigo (*Baptisia tinctoria*) has been in use—chiefly by the eclectics—for about three-quarters of a century, but there is no satisfactory evidence that it has any therapeutic value. The following text-books on pharmacology do not even mention wild indigo: Cushny, Brunton, Dixon, Binz, Sollmann. It is not official in the United States or other leading pharmacopeias.

A preparation of wild indigo is advertised with extravagant claims for its therapeutic action, but these claims are not supported by any substantial evidence. Other virtues ascribed to wild indigo are its properties as a cardiac and hepatic stimulant and its value in sepsis, particularly in typhoid fever. It actually has emetic and cathartic properties, but even these are inferior to those possessed by many other drugs.

It is very evident that a drug possessing the extraordinary merits that have been claimed for wild indigo would not have remained unnoticed by the leading authorities on pharmacology and therapeutics, especially after its prolonged use in medicine. Owing, therefore, to the lack of substantial evidence of its usefulness, baptisia is not considered as of sufficient importance to warrant its inclusion in the list of non-official drugs. It is probably entirely superfluous.

Correspondence

Revision of the Pharmacopeia

To the Editor:—The principles to govern the revision of the next Pharmacopeia suggested by Dr. Osborne in THE JOURNAL, January 1, are the best of the many that I have seen. I heartily approve of them but would like to add two more.

First: That no compounds be included in the Pharmacopeia. Those which have been will be permanently standardized by Dr. Osborne's second rule or principle which makes the standards of former editions of the Pharmacopeia permanent standards for drugs which are dropped from the new edition. Possibly it will be well to describe a few menstrua, pill masses, etc., and also well to indicate how each drug can be administered most agreeably.

Second: Standard abbreviations for all drugs should be given in an appendix. Almost every prescription is written in abbreviations and they should be standardized.

I hope the time will come when drugs in the Pharmacopeia will be defined by their physiologic action as well as by their physical and chemic attributes, because the possession of physiologic action is the only thing that makes them useful drugs. Therefore this is the best definition of them.

The Committee on Revision is entirely capable of compiling all that is authoritatively known on this subject. I appreciate the fact that some drugs in the Pharmacopeia have not been sufficiently studied to have their physiologic action known. But this lack of knowledge would be emphasized when stated in the Pharmacopeia and would lead to their systematic study or rejection.

If knowledge of this kind were added to the Pharmacopeia it would make it more serviceable to both physicians and pharmacists.

N. S. DAVIS, Chicago.

Alcohol Dangerous in Emergency Cases

To the Editor:—An incident which occurred in a prominent city in New York state has become the subject of some controversy, and has been referred to me for an opinion. The facts being of more than local interest, a reply through THE JOURNAL seems most practical.

A man of some prominence fainted in the street, and was taken to the office of a physician, who gave him brandy in large quantities to keep up the action of the heart. The patient died in the course of a few hours, the post-mortem revealing hemorrhage, and rupture of several cerebral arteries. It was contended by his friends that the brandy hastened his death by increasing the rupture of the arteries and perhaps flooding the brain with more blood than would have naturally passed through the fractures.

A case was cited, for comparison, of a middle-aged man who fainted and was found unconscious on the street, who was treated with water poured on the back of the neck, kept in a reclining position with hot bottles to his feet and no spirits given. He recovered with partial paralysis. The assertion was made that, had any form of alcohol been given, the increased action of the heart would have sent a blood-stream through the circulation with greater velocity, widening the ruptured artery and making the case fatal. In such cases a small break at first would be greatly increased by a sudden pressure of the blood, and nothing would be more unwise than to increase the heart's beats and the blood-pressure at this time.

Men found in the street in a state of coma, in whom the heart-beat is reduced and is hardly discernible are often given alcohol for the purpose of starting up the heart, and the supposition is that this is curative and without it the depression would naturally go on to death. In reality, in many cases of coma the action of spirits starts up the heart, and very soon afterward increased depression sets in and no further use of spirits has any influence other than a transient rise and increased depression, ending in death. It never occurs to the physician that rousing up the heart and increasing the flow of blood is increasing the danger and fatality of the case. It is also noted that fractures and extensive lacerations of the bones and muscles always heal more slowly and are more complicated when alcohol is given at the start to prevent shocks and to overcome heart depression. It is evident that in these cases alcohol drives the blood through the broken vessels into the tissue and greatly increases the inflammatory conditions which follow. A person found in the street unconscious, with a face intensely red, showing congestion, and vasomoter palsy, should never be given alcohol, for the reason that it increases the palsy and vasomotor paralysis, and is very likely to be followed by rupture of the cerebral arteries.

In apoplectic fits and head injuries the same danger exists. The increased action of the heart is always at the expense of the vitality, and it is a grave question whether anesthesia is the proper thing to produce in such cases. It is also noted that in bruises and contusions among drinking men, the congestion is greater, the inflammation is intense, and recovery slower.

In amputations or ligations of arteries alcohol increases hemorrhage and is an exceedingly dangerous agent.

In emergency cases in which the heart is depressed the patients should never be given alcohol because of the great danger and uncertainty of its physiologic action. Raising the blood-current and forcing it with greater velocity is followed by depression and unknown conditions which are hazardous to the last degree.

It may be asserted without question, in view of the wealth of clinical facts which has placed the subject beyond opinions or theories, that alcohol is one of the most dangerous of all drugs in emergency cases, and this is sustained by the fact that so many other measures and remedies are available that have no such physiologic action as alcohol.

It is not a matter of controversy, but one of facts which can be tested, and the physician should put aside all prejudices and theories of the past and examine the matter in the light of the present knowledge, and use only those means which are known to be safe and practical.

T. D. CROTHERS, M.D., Hartford, Conn.

Nastin Treatment of Leprosy—A Correction

To the Editor:—My attention has been directed to page 1124 of THE JOURNAL for Oct. 2, 1909, where my contribution to the Leprosy Conference is noted. I am represented as "greatly opposed to the use of nastin." The matter, I am aware, is not of much general interest, but at the same time I feel obliged to point out that these words misrepresent me altogether; all that I did was to report, with full clinical details, trial of nastin in four cases. The clinical details were very fully given and showed that no therapeutic effects, nor indeed effects of any kind, were produced; to such a statement I confined my remarks.

J. ASHBURTON THOMPSON, Sidney, N. S. W.

Miscellany

CLIPPINGS FROM LAY EXCHANGES

WILLING HANDS MAKE LIGHT WORK

Dr. ——— is dead. Just as he was crossing the rails the southbound Cape May express . . . came rushing down the track and caught the doctor, with his horse, wagon and dog companion, and threw them high in the air, death resulting instantaneously. All that remained of them was a mass of mangled humanity, cut in twain, a ground-up horse, dead dog and a demolished vehicle. Willing hands gathered up the fragments and Coroner ——— was notified.—Cape May (N. J.) *Gazette*, Sept. 18, 1909.

LOST HEART BEAT, MAY DIE

Last Sunday Mr. ——— was taken violently ill, the first symptoms being shown when blood began to spurt from his nose. A physician was hastily summoned and on examination stated that Mr. ——— was suffering from hemorrhage, the result of his heart having lost one beat.—Waukegan (Ill.) *Gazette*, June 4, 1909.

TOO BAD—HORRIBLE EXAMPLE

The following heading is quoted from the Stockton (Cal.) *Evening Record*, Nov. 13, 1909:

ALCOHOLIC EPILEPSY

Dr. A. W. H——— Shows Effects of Liquor

His Paper Before Physicians' Convention Gives Drinkers Strong Object Lesson

THE STATE OF TENDER YEARS

Matrimony Hospital on Grill.—. . . Steps are being taken . . . to investigate a maternity hospital at Beloit in which several wards of the state of tender years have been cared for. —Madison (Wis.) *Democrat*, Nov. 9, 1909.

POSTERIOR TRACHEOTOMY—PLEASE PUBLISH THE TECHNIC

. . . Resorting to tracheotomy, they made a small incision in the back of the lad's neck, and from the outside, and the burr was then removed, although with much difficulty, as it was firmly lodged and the throat was badly inflamed and swollen.—Eldora (Iowa) dispatch to Omaha *World-Herald*, Oct. 24, 1909.

A NEW NEUROSIS

A new disease has sprung up in San Francisco certainly unknown before to the medical profession. Yesterday an old German lady came to my office and in a pitiful tone complained that she was suffering terribly since the earthquake from nervous castration.—Personal communication from San Francisco physician.

INTESTINAL SYSTEM REMOVED AND RESET

One of the most remarkable surgical operations . . . was successfully carried through . . . by Dr. ———, chief surgeon . . . Almost the entire intestinal system was removed from the abdomen of a 12-year-old boy, cleansed of foreign matter, numerous lacerations stitched, and the intestines replaced and reset.—*Philadelphia Record*.

The Public Service

Medical Department of the Army

Changes for the week ending Jan. 15, 1910:

Reddy, John J., 1st lieut. M. R. C., Jan. 7 ordered to active service and assigned to duty at Ft. Monroe, Va.

Brooks, Wm. H., capt., Presidio of San Francisco, Hopwood, Lucius L., capt., Army Gen. Hosp., San Francisco, Card, Daniel P., lieut., Army. Gen. Hosp., San Francisco, ordered to report to the commanding officer Sixth Cavalry, on arrival of the Transport *Sheridan* at San Francisco, for duty with command to Ft. Des Moines, Iowa. On completion of this duty to return to their proper stations.

The following changes in stations and duties of officers of the Medical Corps and the Medical Reserve Corps are ordered:

Capt. Carroll D. Buck, to Alcatruz Island, Cal., relieving Capt. Robert M. Thornburgh, who will proceed to the Army Gen. Hosp., San Francisco. First Lieut. Edgar King to Ft. McDowell, Cal. First Lieut. Guy V. Rukke, to the Army Gen. Hosp., San Francisco. First Lieut. Frank E. Artaud, M. R. C., to Key West Barracks, Fla., relieving Capt. Henry K. Brown, who will proceed to Ft. Morgan, Ala., relieving 1st Lieut. Samuel A. Springwater, M. R. C., who will proceed to Ft. St. Philip, La. First Lieut. James C. Dougherty, M. R. C., to Ft. Bliss, Texas, 1st Lieut. Ernest K. Johnstone, M. R. C., from the Presidio of San Francisco to Fort Shafter, H. T., relieving 1st Lieut. Henry du R. Phelan, M. R. C., who will proceed to Ft. De Russy, H. T., relieving 1st Lieut. John P. Kelly, M. R. C., who will proceed to Schofield Barracks, H. T.

Shook, Jay R., capt., January 8, relieved from duty as attending surgeon at Chicago and ordered to Jefferson Barracks, Mo., for temporary duty for a period of one month, then to Ft. Logan, Colo., for duty.

Sherwood, John W., 1st lieut., M. R. C., January 7, ordered to proceed from Ft. Williams, Me., to Ft. Andrews, Mass., for temporary duty.

Brown, Orville G., capt., January 4, granted 30 days leave of absence.

Brooks, William H., capt., January 7, granted 10 days leave of absence.

The following named officers of the Medical Corps and Medical Reserve Corps are ordered from duty at the stations designated after their respective names and will proceed to San Francisco and take transport to sail from that place about April 5, 1910, for duty in the Philippine Islands:

Capt. John W. Hanner, U. S. Military Academy, West Point, N. Y.
Capt. Leon T. Le Wald, Columbus Barracks, Ohio.
Capt. Orville G. Brown, Fort Robinson, Neb.
First Lieut. Morrison C. Stayer, Ft. McDowell, Cal.
First Lieut. Ralph H. Goldthwaite, Co. C, Hospital Corps. Ft. Niagara, N. Y.
First Lieut. Lewis A. Lavanture, M. R. C., Ft. D. A. Russell, Wyo.
First Lieut. William C. Lyon, M. R. C., Ft. DuPont, Del.
First Lieut. James A. Simpson, M. R. C., Presidio of Monterey, Cal.
First Lieut. Herman N. Bundesen, M. R. C., Ft. D. A. Russell, Wyo.

The following named medical officers will sail May 5, 1910, for duty in the Philippine Islands.

Capt. Herbert G. Shaw, Vancouver Barracks, Wash.
Capt. Jesse R. Harris, Ft. George Wright, Wash.
Capt. Theodore Lamson, Columbus Barracks, Ohio.
Capt. James D. Heysinger, Ft. Ethan Allen, Vt.
Capt. John B. Huggins, Walter Reed Gen. Hosp., Takoma Park, D. C.
First Lieut. Joseph O. Walkup, M. R. C., Ft. Snelling, Minn.
First Lieut. Thomas W. Penrose, M. R. C., Plattsburg Barracks, N. Y.
First Lieut. Edgar F. Haines, M. R. C., Ft. Moultrie, S. C.
First Lieut. James B. Van Horn, M. R. C., Ft. Mackenzie, Wyo.

McCaw, Walter D., lieut. colonel; Darnall, Carl R., major; Russell, Frederick F., major, January 11, detailed to represent the Medical Department of the Army at the United States Pharmacopeial Convention to be held in this city May 10, 1910.

Public Health and Marine-Hospital Service.

Changes for the week ended Jan. 12, 1910:

Korn, W. A., P. A. surgeon, granted 10 days' leave of absence from Jan. 13, 1910.

Preble, Paul, asst.-surgeon, granted 2 days' leave of absence from Jan. 11, 1910.

Cleborne, A. B., acting asst.-surgeon, granted 7 days' leave of absence from Jan. 2, 1910, under paragraph 210, Service Regulations.

Delgado, J. M., acting asst.-surgeon, granted 6 days leave of absence from Dec. 26, 1909, under paragraph 210, Service Regulations.

Dynan, N. J., acting asst.-surgeon, granted 4 days' leave of absence in December, 1909, under paragraph 210, Service Regulations.

Savage, Walter L., acting asst.-surgeon, granted 30 days' extension of leave of absence from Dec. 1, 1909, on account of sickness.

Thornton, M. J., acting asst.-surgeon, granted 6 days' leave of absence from Dec. 20, 1909, under paragraph 210, Service Regulations.

Vandiver, J. C., acting asst.-surgeon, granted 3 days' leave of absence from Dec. 26, 1909, under paragraph 210, Service Regulations.

Watson, H. J., acting asst.-surgeon, granted 11 days' leave of absence from Jan. 1, 1910.

BOARD CONVENED

Board of medical officers convened to meet at the Marine Hospital, San Francisco, Jan. 11, 1910, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon J. M. Gassaway, chairman; P. A. Surgeon R. E. Ebersole; Asst.-Surgeon S. C. Hotchkiss, recorder. Jan. 6, 1910.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WORKS OF SYDENHAM

To the Editor:—I have in my library a volume of "The Entire Works of Thomas Sydenham," revised and corrected by Dr. John Swan and published by Edward Cave, of London, in the year 1749. It gives an account of "The Continued Fever of the Years 1661, 1662, 1663, 1664," and many other diseases. I desire information about this old book, how many volumes are in existence, its probable value, etc. L. LEAMING, M.D., Otterbein, Ind.

EFFECT OF DENATURED ALCOHOL ON THE SKIN

To the Editor:—I notice a letter from Dr. Hottendorf, in THE JOURNAL, Jan. 15, 1910, p. 221, asking for the effect of denatured alcohol on the skin. A case in point occurred in my practice recently. A male patient had pediculus pubis pandemically. I presume he reinfects himself from uncleanly bed covering. My treatment has been an alcoholic solution of mercury bichlorid. He has used it with good results for the time being, and never had any ill effects. It occurred to me that as he was using so much, it would be cheaper to use denatured alcohol and so changed my prescription. The man applied it but twice and returned to me with marked burns of the root of the penis and scrotum. The skin was red and angry around the burns, which were superficial, and covered with a light crust. I treated the lesions as ordinary burns with happy results. It taught me the folly of false economy. I do not know the denaturing agent, but believe nitrobenzole is sometimes used. FRANCIS SCHILL, JR., M.D., Johnstown, Pa.

ANTITYPHOID INOCULATIONS

To the Editor:—Please furnish references to the literature on antityphoid inoculations, and designate those dealing with the technic.

ANSWER.—In THE JOURNAL of May 8, 1909, p. 1518, under Queries and Minor Notes, will be found a number of references. In addition to those are the following:

Leishman: Antityphoid Inoculation in the British Army, *Military Surgeon*, June, 1908; abstr. in THE JOURNAL, Aug. 15, 1908, p. 623.

Stone: Typhoid Immunity and Typhoid Inoculation, THE JOURNAL, Oct. 16, 1908, p. 1253.

Editorials in THE JOURNAL, Dec. 12, 1908, p. 2063, and Dec. 7, 1907, p. 1922.

Nichols: Bacterial Inoculations in Typhoid, *Washington Medical Annals*, November, 1909; abstr. in THE JOURNAL, Dec. 11, 1909, p. 2038. This paper deals with the technic.

Editorial in THE JOURNAL, Jan. 1, 1910, p. 54. This deals with technic.

GRADUATE STUDY ABROAD

To the Editor:—Please give references to articles that have appeared in THE JOURNAL in the past few years concerning graduate medical study in America and Europe. K. T.

ANSWER:—The answer to an inquiry in THE JOURNAL, Nov. 16, 1907, p. 1695, discusses fully the matter of graduate study at home and abroad, and sets out the advantages to be enjoyed in each of the large medical centers of Europe, London, Paris, Berlin and Vienna, giving information as to teachers, clinics, hospitals, fees, living expenses, etc., and also referring to other articles appearing in THE JOURNAL on the subject.

June 1, 1907, p. 1879, THE JOURNAL gave information concerning work in Vienna, courses, teachers, fees, living expenses, etc.

Oct. 27, 1906, p. 1391, we published a letter on Vienna from the medical student's point of view, which gives valuable information as to the hospitals, men, clinics, fees, living expenses, etc.

Other references are:

"Proposed International System of Graduate Courses," THE JOURNAL, July 17, 1909, p. 222.

"Medical Education in France and Germany," abstracted in THE JOURNAL, Aug. 28, 1909, p. 740.

"Information Regarding Teachers Abroad," THE JOURNAL, Jan. 9, 1909, p. 152.

"Graduate Courses in Germany," THE JOURNAL, Jan. 4, 1908, p. 62.

"Graduate Work in Mission Hospitals," THE JOURNAL, Feb. 29, 1908, p. 705.

"Graduate Work in Duesseldorf," THE JOURNAL, March 28, 1908, p. 1051.

"Psychiatry in Munich," THE JOURNAL, Jan. 1, 1910, p. 65.

Information may be obtained personally or by mail from the following:

LONDON: Secretary of the London Postgraduate Association, West Wing, Examination Hall, Victoria Embankment, London.

LONDON: Dean of the Northeast London Postgraduate College, Tottenham, London, N.

LONDON: Dean of the West London Postgraduate College, Hammersmith Road, London, W.

PARIS: Continental Anglo-American Medical Society, Dr. Charles G. Jarviss, Secretary, 81 Boulevard Malesherbes, Paris.

BERLIN: Medical Inquiry Office, Kaiserin Friedrich-Haus, Luisenplatz, 2, Berlin.

BERLIN: Anglo-American Medical Association, 73 Lutzöwstrasse, Berlin.

VIENNA: Secretary of the American Medical Association of Vienna, Cafe Klinik, IX Spitalgasse, Vienna.

Articles on graduate study in the United States are rare, but it is stated that, in many subjects, one may receive better and more effective training in this country than abroad.

THE STERILITY OF URINE

To the Editor:—So far as I know from the literature at my disposal, urine collected under aseptic conditions from healthy individuals is sterile. I would like to know whether or not this is correct. DR. A.

ANSWER:—Text-books on the urine state that it is normally sterile while in the bladder, but becomes contaminated with microorganisms in passing through the urethra, as this channel is practically never free from germs. The experiments from which this conclusion has been reached were performed a long time ago and the original sources are not quoted.

LITERATURE ON RHEUMATOID ARTHRITIS

To the Editor:—Please refer me to literature on the etiology, pathology and treatment of rheumatoid arthritis.
R. S. CUMMINGS, M.D., National City, San Diego, Cal.

ANSWER:—The following are some of the most important articles on this subject published since 1907:

Locke, E. A., and Osgood, R. E.: The Treatment of Non-Tuberculous Chronic Arthritis, THE JOURNAL A. M. A., Feb. 2, 1907, p. 388.

Hoffa, A.: Chronic Articular Rheumatism and Arthritis Deformans, THE JOURNAL A. M. A., May 11, 1907, p. 1586.

Midelton, W. J.: Treatment of Rheumatoid Arthritis, *Lancet*, London, Sept. 28, 1907; abstr. in THE JOURNAL A. M. A., Oct. 26, 1907, p. 1476.

Luff, A. P.: Pathology and Treatment of Rheumatoid Arthritis and Morbid Conditions which Simulate It, *Brit. Med. Jour.*, Oct. 26, 1907; abstr. in THE JOURNAL A. M. A., Nov. 23, 1907, p. 1808.

Muse, E. H.: A Case of Multiple Arthritis Deformans, THE JOURNAL A. M. A., July 11, 1908, p. 124.

Marshall, H. W.: The Etiology of Chronic Non-Tuberculous Arthritis, THE JOURNAL A. M. A., Sept. 12, 1908, p. 890.

Murrell, T. W.: Rheumatoid Arthritis and Its Treatment, *Med. Press and Circ.*, Dec. 20, 1908; abstr. in THE JOURNAL A. M. A., Jan. 30, 1909, p. 421.

Tubby, H. A.: Arthritis Deformans, *Lancet*, London, Dec. 26, 1908; abstr. in THE JOURNAL A. M. A., Jan. 23, 1909, p. 333.

Arthritis Deformans, Editorial in THE JOURNAL A. M. A., Dec. 4, 1909, p. 1919.

Nichols and Richardson: *Jour. Méd. Research*, September, 1909, xxi, 149.

THE VACUUM BOTTLE IN PROCTOCLYSIS

In THE JOURNAL, December 25, 1909, p. 2160, were published two articles describing apparatus for the administration of salines by rectum or hypodermically, both of which made use of the vacuum bottle for maintaining the temperature of the solution used. One was by Dr. R. M. Harbin, Rome, Ga., and the other by Dr. John M. Garratt, Buffalo. Dr. Robert Coleman Kemp, New York City, calls attention to the fact that in the *New York Medical Journal*, August 14, 1909, he published a detailed description of an apparatus for saline infusion making use of the vacuum bottle, and therefore claims priority for this idea. On writing to the doctors above named, Dr. Harbin replies that he had no knowledge of Dr. Kemp's article, as does also Dr. Garratt. Both admit, however, that they had made no previous publication of their ideas, though Dr. Garratt states that the idea of the use of the vacuum bottle for the purpose named occurred to him in September, 1908, and his apparatus was perfected in December, 1908, and has been in use ever since. Drs. Harbin and Kemp do not state when they conceived the idea or first used the vacuum bottle. It would appear, therefore, that though the idea may have occurred separately to these gentlemen Dr. Kemp was first to publish a description of his apparatus. There are differences in the details of the three infusion outfits.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.

NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.

NEW YORK: Albany, February 1-4. Chief of Examinations Division, Dr. Charles F. Wheelock.

WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Oklahoma April and July Reports

Dr. Frank P. Davis, secretary of the Oklahoma State Board of Medical Examiners, reports the written examinations held at Guthrie, April 13-15, and July 12-15, 1909. The number of subjects examined in was 22; total number of questions asked, 150; percentage required to pass, 70.

At the examination held April 13-14, the total number of candidates examined was 38, of whom 23 passed and 15 failed. Three reciprocal licenses were issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1903)	71
Birmingham Medical College	(1908)	92
Northwestern University Medical School	(1897)	86
Central College of Phys. and Surg., Indianapolis	(1905)	80
Keokuk Medical College, College of Phys. and Surg.	(1907)	71
Kansas Medical College	(1900)	79
University of Kansas	(1906) 79; (1907)	83
University of Louisville	(1907)	75
Louisville and Hospital Medical College	(1908) 80,	90
Kentucky University	(1902)	77
Louisville Medical College	(1906)	85
College of Physicians and Surgeons, Baltimore	(1906)	83
Barnes Medical College	(1907)	75
St. Louis University	(1908)	91
North Carolina Medical College	(1906)	79
Syracuse University	(1905)	90
Jefferson Medical College	(1880)	82
Hahnemann Medical College, Philadelphia	(1907)	83
Vanderbilt University	(1907) 92; (1908)	88
Chattanooga Medical College	(1904)	90

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1908)	65
Bennett College of Eclectic Medicine and Surgery	(1887)	*75
Chicago College of Medicine and Surgery	(1903)	*76
Keokuk Medical College	(1891) 45; (1898)	*70
Louisville and Hospital Medical College	(1900)	*81
Kentucky School of Medicine	(1894)	*74
University of Michigan, College of Medicine	(1893)	49
University Medical College, Kansas City	(1894)	34
St. Louis University	(1905)	*74
Beaumont Hospital Medical College	(1900)	62
Eclectic Medical Institute, Cincinnati	(1889)	60
Knoxville Medical College	(1908)	63
University of the South	(1908)	67
Gate City Medical College†	(1907)	64

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
Chicago College of Medicine and Surgery	(1909)	Illinois
Rush Medical College	(1903)	Illinois
St. Louis College of Physicians and Surgeons	(1908)	New Mexico

At the examination held July 12-15, 1909, the total number of candidates examined was 46, of whom 26 passed and 20 failed. One candidate failed to complete the examination. Five reciprocal licenses were issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1909)	74
Northwestern University Med. School	(1893) 80; (1909)	75
Illinois Medical College	(1898)	81
College of Phys. and Surg., Chicago	(1903) 77; (1909)	80
University of Iowa, Homeopathic College	(1906)	76
Kansas Medical College	(1909)	71
University of Kansas	(1909)	83
University of Louisville	(1907) 72,	75
Flint Medical College	(1909)	77
Tulane University of Louisiana	(1908)	72
St. Louis University	(1909)	87
Barnes Medical College	(1898)	72
Beaumont Hospital Medical College	(1894)	75
Epworth University	(1908) 74; (1909)	73, 75
Jefferson Medical College	(1909)	80
University of Texas	(1900)	70
Meharry Medical College	(1907) 75; (1909)	73
University of the South	(1908)	74
University of Nashville	(1909)	85
Vanderbilt University	(1900)	75

FAILED

College	Year Grad.	Per Cent.
University of Arkansas	(1892)	57
Bennett College of Eclectic Medicine and Surgery	(1887)	*‡72
Chicago Homeopathic Medical College	(1891)	*76
Keokuk Medical College	(1891)	‡57
Kentucky University	(1906)	60
Kentucky School of Medicine	(1894)	*‡74
University of Louisville	(1909)	*71
Tulane University of Louisiana	(1909)	69
University of Michigan	(1873)	‡51
Kansas City Hahnemann Medical College	(1908)	*71
St. Louis University	(1909)	*74
St. Louis College of Physicians and Surgeons	(1909)	65
University Medical College, Kansas City	(1894)	‡67
Eclectic Medical Institute, Cincinnati	(1889)	‡56
University of Pennsylvania	(1890)	*79
Northwestern Medical College, St. Joseph	(1893)	67
Tennessee Medical College	(1900)	‡63
University of Nashville	(1909)	66
Knoxville Medical College	(1908)	65
Chattanooga Medical College	(1902)	*71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
Chicago College of Medicine and Surgery	(1909)	Illinois
Hahnemann Med. College and Hospital, Chicago	(1900)	Illinois
Northwestern University Medical School	(1907)	Illinois
Indiana Medical College	(1906)	Indiana
Chattanooga Medical College	(1908)	Tennessee

* Fell below the minimum of 50 per cent. in one or more branches.

† Regarding the character of this school, see JOURNAL A. M. A., Oct. 19, 1907, p. 1385.

‡ Second examination.

North Carolina June Report

Dr. Benjamin K. Hays, secretary of the Board of Medical Examiners of North Carolina, reports the written examination held at Asheville, June 9, 1909. The number of subjects examined in was 14; percentage required to pass, 80 and not less than 35 in any one branch. The total number of candidates examined was 116, of whom 97 passed, 18 failed and 1 withdrew. Thirteen reciprocal licenses and 14 limited territory licenses were granted at this examination. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined.
George Washington University	(1908)	1
Atlanta College of Phys. and Surg.	(1900) (2, 1909)	3
Atlanta School of Medicine	(1909)	5
University of Louisville	(1909)	1
College of Physicians and Surgeons, Batimore	(1909)	1
Woman's Medical College of Baltimore	(1909)	1
Baltimore Medical College	(1908)	1
University of Maryland	(1906) (1907) (10, 1909)	12
Johns Hopkins University	(1907) (1909)	2
University of Michigan	(1909)	1
Columbia University, College of Phys. and Surg.	(1909)	1
North Carolina Med. College	(1907) (1908) (12, 1909)	14
University of North Carolina	(1909)	12
Leonard Medical School	(1908) (9, 1909)	10
University of Pennsylvania	(1909)	4
Jefferson Medical School	(1909)	8
University of the South	(1904)	1
Tennessee Medical College	(1896) (1908)	2
Medical College of Virginia, Richmond	(1909)	3
Univ. Coll. of Med., Richmond	(2, 1908) (12, 1909)	14

FAILED

College	Year Grad.	Per Cent.
University of Maryland	(1904)	60
Leonard Medical School	(1909) 74,	75, 76
University of North Carolina	(1909)	74
Knoxville Medical College	(1908) 66; (1909)	60
University of the South	(1905) 42; (1909)	77
Chattanooga Medical College	(1900) 55; (1908) 62,	68
Tennessee Medical College	(1904)	50
University of Nashville	(1908) 67,	71
Meharry Medical College	(1905)	58
University of Tennessee	(1908)	62
Gate City Medical College	(1904)	52

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
George Washington University	(1906)	Maryland
Medical College of Georgia	(1894)	Georgia
College of Physicians and Surgeons, Indianapolis	(1898)	Indiana
University of Louisville	(1859)	Illinois
Tufts College Medical School	(1907)	Mass.
North Carolina Medical College	(1896)	Penna.
Columbia University, College of Phys. and Surg.	(1906)	New York
Tennessee Medical College	(1894)	Tennessee
Medical College of Virginia	(1905)	Virginia
Univ. Coll. of Med., Richmond	(1905) (1906) (1907)	Virginia
Army Medical College	(1892)	U. S. Army

GRANTED LIMITED TERRITORY LICENSES

College	Year Grad.	Total Number
Tennessee Medical College	(1891)	1
University of Tennessee	(1905) (1906)	2
Non-graduates		11

Marriages

LEANDER J. NICKELL, M.D., Blaine, Ky., to Miss Ethel Coldiron of Relief, Ky., recently.

RICHARD MARION NELSON, M.D., to Miss Anna Moore, both of Colon, Panama, recently.

RICHARD A. BURKE, M.D., to Miss Libbie Cox, both of Ishpeming, Mich., December 29.

WILLIAM C. MCREE, M.D., to Miss Sallie Mae Elder, both of Trenton, Tenn., January 7.

JAMES EDWIN RAY, M.D., Boston, to Miss Maude E. Murdock of Carthage, Mo., December 31.

GEORGE WARNER MOSHER, M.D., Chicago, to Mrs. Mary Isabelle Fixen of Racine, Wis., January 5.

E. J. HORAN, M.D., Glenwood Springs, Colo., to Miss Lucy M. McLearn of Rifle, Colo., December 29.

AUGUSTUS LEON BEIER, M.D., Chippewa Falls, Wis., to Miss Elizabeth Wilkins of Boyd, Wis., January 3.

HAMPDEN AULICK BURKE, M. D., Petersburg, Va., to Miss Ethel May Francis, at Petersburg, January 6.

HAROLD WELLINGTON JONES, M. C., U. S. Army, to Mrs. Evarts Ewing Munn in Pittsfield, Mass, January 1.

CHARLES P. VINCENT, M.D., Enoree, S. C., to Miss Essie Drummond of Lanford, S. C., at Woodruff, S. C., December 29.

Deaths

Washington Lafayette Schenck, M.D. Dartmouth Medical School, Hanover, N. H., 1849; formerly a member of the American Medical Association, and first vice-president in 1888; president of the Kansas State Medical Society in 1877; of the Kansas East District Medical Society in 1880; of the Warren County, Ohio, Medical Society in 1854; and a member of the Topeka Medical Society and the Kansas Historical Society; professor of hygiene and state medicine in the University of Kansas City; adjunct professor of practice of medicine and professor of hygiene and preventive and state medicine in Kansas Medical College, of which he was one of the organizers; surgeon of the Seventh Ohio Volunteer Infantry, later in charge of army hospitals Nos. 10 and 15, and on the staff of Major General Hamilton; and afterwards surgeon on the Board of Enrollment of the Third Ohio Congressional District during the Civil War; at the close of the war, deputy U. S. tax collector in Camden, Ark.; pension examiner for Osage county, Kan., and a member of the school board of Sage City and of Franklin, Ohio; for four terms a member of the Kansas State Board of Health; once mayor of Franklin, Ohio; a trustee of Antioch College, Yellow Springs, Ohio, and the Kansas Medical College; local surgeon for the Denver and Rio Grande Railroad and the Colorado Fuel and Iron Company at New Castle, Colo., in 1895 and 1896, and for the Santa Fe System and Missouri Pacific Railroad at Osage City from 1872 to 1890; died at his home in Topeka, January 4, from pneumonia, aged 84.

Peter Brough Montgomery, M.D. Bellevue Hospital Medical College, 1886; of Chambersburg, Pa.; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; vice-president of the Cumberland Valley Medical Association; formerly president of the Medical Society of Franklin County; once coroner and twice a member of the city council; and a member of the staff of Chambersburg Hospital; died suddenly at Buena Vista, Fla., where he had gone for rest, from influenza, aged 47.

Howard Alden Reed, M.D. University of Pennsylvania, Philadelphia, 1903; Army Medical School, 1906; a member of the American Medical Association and Association of Military Surgeons of the United States; who enlisted in the army as a private in the artillery, and served during the Spanish-American War; was appointed first lieutenant in the Medical Corps June 20, 1906, and was retired with the rank of captain on account of disability incident to the service in 1909; died at Milford, Pa., January 2, from tuberculosis, aged 34.

James Wellington Byers, M.D. Atlanta (Ga.) Medical College, 1882; formerly secretary of the Charlotte (N. C.) Academy of Medicine; secretary of the city board of health; secretary and treasurer of the Mecklenburg county board of health; a member of the Medical Society of the State of North Carolina, and surgeon of the Fourth Infantry, N. C. State Guard; for a few months a resident of Milledgeville, Ga.; died in that city, January 3, aged 48.

William C. McCulloch, M.D. Albany (N. Y.) Medical College, 1897; a member of the American Medical Association; and for two terms president of the board of health of Gloversville; once president of the Gloversville and Johnstown Medical Society, and for two terms president of the board of health of Gloversville, N. Y.; died suddenly from cerebral hemorrhage, at the home of a patient while making a professional call, January 8, aged 38.

David W. Coon, M.D. Missouri Medical College, St. Louis, 1891; a member of the American Medical Association and formerly president of the Grundy County (Mo.) Medical Society; for four terms coroner of Grundy county and county physician twice; for two terms county treasurer, and for four terms city physician of Trenton; died at his home January 10, as the result of injuries received in a fall a few days before, aged 55.

Allen S. Heath, M.D. New York University, New York City, 1844; formerly a member of the Kings County Medical Society, and Brooklyn Pathological Society; surgeon in the U. S. Navy for fifteen months, and afterward chief surgeon of volunteers during the Civil War; said to have been the oldest graduate of his alma mater; died at the home of his daughter in New York City, January 2, from senile debility, aged 88.

Zachariah Carnes, M.D. University of Louisville, 1877; a member of the Indiana State Medical Association; a veteran of the Civil War; at one time president of the Johnson County Medical Society; for twenty years local surgeon of the Pennsylvania System, and for many years a member of the school board; died at his home in Greenwood, January from tuberculosis, aged 71.

William Jackson McHench, M.D. University of Michigan, Ann Arbor, 1858; acting assistant surgeon in the Army during the Civil War; of Brighton, Mich.; for many years division surgeon of the Pere Marquette Railway; died in Bradentown, Fla., where he had gone for his health for the winter, January 1, from heart disease, aged 78.

Charles Harrison Shackford, M.D. Harvard Medical School, 1849; a charter member of the Harvard Alumni Association, and for forty years a member of the American Medical Association; a member of the staff of Frost Hospital, Chelsea, Mass., for thirteen years; died at his home in that city, December 25, aged 85.

William Bradley Chase, M.D. Jefferson Medical College, Philadelphia, 1857; for several years a member of the school board of Swampscott, Mass.; a member of the board of selectmen, and for two years postmaster; died at his home in Lynn, Mass., January 4, from cerebral hemorrhage, aged 76.

Jefferson Davis Pryor, M.D. University of Louisville, 1890; a member of the Kentucky State Medical Association; of Mayfield; died at Riverside Hospital, Paducah, January 7, from meningitis, the result of severe burns received by the explosion of a stove in his office 27 days before, aged 47.

Leonard A. Kittinger, M.D. Hahnemann Medical College, Philadelphia, 1881; secretary of the Homeopathic Board of Medical Examiners of Delaware; and treasurer of the Homeopathic State Medical Society; died at his home in Wilmington, January 1, from cerebral hemorrhage, aged 49.

John L. Carson, M.D. Northwestern Medical College, St. Joseph, Mo., 1894; a member of the Medical Society of the State of California, and San Joaquin Valley Medical Association; local surgeon of the Santa Fe System at Bakersfield; died at his home, December 24, aged 48.

William Symington Brown, M.D. Penn Medical University, Philadelphia, 1854; a member of the Massachusetts Medical Society; assistant surgeon of the Thirty-third Massachusetts Volunteer Infantry during the Civil War; died at his home in Stoneham, Mass., January 6, aged 89.

Herman H. Dinsmore, M.D. University of Vermont, Burlington, 1897; of Enfield, N. H.; formerly pathologist to Notre Dame Hospital, Manchester, N. H.; and a member of the Manchester Medical Association; died at the home of his mother in Manchester, January 3, aged 36.

Alfred H. Hoadley, M.D. Albany (N. Y.) Medical College, 1886; a member of the American Medical Association; attending surgeon to Dickinson Hospital, Northampton, Mass.; died in that institution, December 29, from septicemia, due to an operation wound, aged 54.

James Russell Post, M.D. Philadelphia, 1871; formerly a practitioner of Picton, Ont.; physician to the Rome, N. Y., jail, a city physician and a member of the staff of the Rome hospital; died at his home in Rome, December 22, from nephritis, aged 60

Darius W. Loree, M.D. University of Michigan, Ann Arbor, 1860; a member of the Michigan State Medical Society; for half a century a practitioner of Ridgeway; died at his home in that village, January 9, from disease of the stomach, aged 76.

William A. Monnish, M.D. Atlanta (Ga.) Medical College, 1890; formerly of Atlanta, Ga.; died in his apartments in San Francisco, January 2, from the effects of chloroform, believed to have been self-administered with suicidal intent, while despondent, aged 48.

William T. Milstead, M.D. Louisville Medical College, 1890; a member of the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee, died at his home in Hot Springs, Ark., December 29, from nephritis, aged 43.

John G. L. Gaedeke, M.D. Eclectic Medical College of the City of New York, 1881; formerly an examiner in lunacy of New York State; died at his home in New York City, December 25, from heart disease, aged 55.

Henry D. Shonts, M.D. Philadelphia; for nearly seventy years a practitioner of medicine; and for more than half of that time in Centerville, Iowa; died at his home in Chicago, January 10, from pneumonia, aged 86.

Charles L. Seip, M.D. Hahnemann Medical College, Philadelphia, 1882; Philadelphia College of Anatomy and Surgery, 1872; died at his home in New Bedford, Mass., December 30, from cerebral hemorrhage, aged 67.

C. M. Stewart, M.D. Cleveland Medical College, 1846; a charter member of the first medical society to be organized in Mercer county, Pa.; died at his home in Mercer, January 5, from senile debility, aged 85.

Montrose Mitcheltree Magoffin, M.D. University of Pennsylvania, Philadelphia, 1852; a member of the American Medical Association; died December 30 at his home in Mercer, Pa., from heart disease, aged 69.

Alexander Edwin Turner, M.D. University of Pennsylvania, Philadelphia, 1874; a member of the Tennessee State Medical Association; died at his home in Neboville, near Newbern, Tenn., January 4, aged 56.

George W. Scranton, M.D. Tulane University, 1874; of Scott, La.; a member of the legislature in 1894 from Lafayette parish; died at the home of his daughter in Youngsville, December 29, aged 60.

Sarah C. Brigham, M.D. Worcester (Mass.) Medical College; Eclectic Medical Institute, Cincinnati, 1857; died at her home in Fitchburg, Mass., December 15, from senile debility, aged 85.

William Murdoch, M.D. Cleveland University of Medicine and Surgery, 1873; a homeopathic practitioner of Akron, Ohio; died at his home in that city, January 2, from pneumonia, aged 67.

Alfred Mathias Spalding, M.D. College of Physicians and Surgeons, New York City, 1883; a member of the New York Academy of Medicine; died at Speonk, L. I., January 3, aged 53.

Henry M. Nipple, M.D. Jefferson Medical College, 1871; a member of the Snyder County (Pa.) Medical Society; died at his home in Selinsgrove, Pa., December 10, from pneumonia, aged 71.

Joseph Francis Hume, M.D. Cincinnati, 1854; a veteran of the Civil War; at one time postmaster of California, Mo.; died in Kansas City, Mo., September 19, from senile debility, aged 86.

John Lee Roach, M.D. Dallas (Texas) Medical College, 1904; a member of the Hunt County Medical Society; died at his home in Lone Oak, Texas, January 4, from pneumonia, aged 41.

Albert Simon, M.D. University of Berlin, Germany, 1849; a surgeon of volunteers during the Civil War; died at his home in Reading, Pa., December 30, from senile debility, aged 81.

William F. Clary, M.D. Castleton (Vt.) Medical College, 1855; a member of the Tennessee State Medical Association; died at his home in Bellbuckle, Tenn., January 9, aged 79.

Benjamin Bond Perkins, M.D. Jefferson Medical College, 1877; formerly of Chestertown, Md.; died at his home in Philadelphia, December 22, from heart disease, aged 82.

Solomon Williams (license, Texas, years of practice); a Confederate veteran; and for twenty years postmaster of Cove, Texas; died at his home, December 8, aged 64.

D. F. Morrison, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Brooksville, Fla., December 26, from the effects of an overdose of chloroform, aged 41.

William R. Jones, M.D. University of Virginia, Charlottesville, 1861; of Hawesville, Ky.; died in Louisville, December 27, after a surgical operation, aged 71.

Robert Edward Lee Rodgers, M.D. Jefferson Medical College, 1890; at one time a physician of Chicago; died at his home in Millsboro, Pa., January 2, aged 45.

B. H. Morehead, M.D. Kentucky School of Medicine, Louisville, 1866; a Confederate veteran; died at his home in Sacramento, Ky., December 31, aged 69.

H. M. Wagner, M.D. Columbus Medical College, 1879; died suddenly at his home in Newark, Ohio, January 3, from cerebral hemorrhage, aged 58.

Mary J. Taylor, M.D. Pulte Medical College, Cincinnati, 1881; died at her home in Greencastle, Ind., December 20, from senile debility, aged 84.

Thomas P. Seller, M.D. Rush Medical College, 1854; died at his home in Indianapolis, December 19, from senile debility, aged 84.

Amos L. Norris, M.D. Rush Medical College, 1872; died at his home in Farmer City, Ill., December 16, from paralysis, aged 62.

John K. Smith, M.D. Jefferson Medical College, 1875; died at his home in Harrisburg, December 25, from pneumonia, aged 65.

Lemuel J. Wood, M.D. Baltimore University, 1887; died at his home in Kelton, S. C., December 27, from acute gastritis, aged 46.

William E. Chappell, M.D. University of Nashville, 1878; died at his home in Kansas City, November 11, aged 68.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, January 25.

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Annual Meeting, held in New York City, Nov. 27, 1909.

(Continued from page 228)

Retrogression of a Case of Lymphosarcoma After Laparotomy

DR. WARFIELD T. LONGCOPE, Philadelphia: The case was that of a man aged 33, who was admitted to the Pennsylvania Hospital on April 20, 1909. He had had swelling of his abdomen for 26 days before admission, with some pain; 10 days before admission three quarts of fluid were removed by tapping. Soon after admission the enormously swollen abdomen was tapped and six quarts of turbid yellow fluid were removed. This was alkaline and of 1024 specific gravity. On standing there was a heavy white precipitate, composed almost entirely of broken cells, the character of which could not be definitely made out. There were, however, a few cells which resembled lymphocytes. No tubercle bacilli were found, nor could other bacteria be demonstrated either in smears or by cultures. Since the sediment contained no proteolytic ferments it was thought probable that the exudate was composed principally of small lymphocytes. The hemoglobin was 88 per cent., white blood corpuscles 8,100. There was no fever. Considering the possibility of tuberculous peritonitis, an operation was performed by Dr. LeConte, at which large quantities of greenish, milky fluid escaped from the peritoneum. The peritoneal surface, the omentum, and the mesentery were found to be studded with small reddish nodules several millimeters in diameter, and in a loop of the small intestine there was a large tumor mass somewhat bigger than one's fist. The condition was supposed to be carcinoma with general carcinosis of the peritoneum, and since the case was considered hopeless the abdomen was closed. Two weeks after the operation fluid had reaccumulated in the abdomen and 54 ounces were removed by tapping. The patient gradually grew weaker, the temperature was exceedingly low, the respiration slow, emaciation marked, but until his death, about six weeks later, there was no marked reaccumulation of fluid.

At autopsy two liters of pale opalescent fluid were found in the peritoneum, but the peritoneal surfaces, though very

slightly thickened, were perfectly smooth and glistening, and at first sight nothing resembling the appearance at operation could be seen. On more careful examination, however, very minute fibrous tags were found extensively scattered over the peritoneum. There were besides a few definite raised tumor-like nodules 1 or 2 mm. in diameter. In the jejunum there were 3 small areas of thickening, which bore slight resemblance to the large tumor mass found at operation. In the pleural cavities there was opalescent fluid. No changes bearing particularly on the case were found in any of the other organs, except the intestines, kidneys and pancreas. Throughout the duodenum the mucous membrane of the intestines was thickened in patches and the mucosa was covered with what looked like a yellowish-green membrane. This was most marked in the regions of the localized thickened areas. On section through these portions the wall of the jejunum was rather tough, and fibrous in appearance, and showed yellowish streaks. The mesenteric and retroperitoneal glands were enlarged to the size of almonds. Sprinkled over both the surface and cut section of the kidney there were numerous small, flat, white areas. The pancreas was large and firm. Microscopic examination showed that the tumors in the jejunum were typical lymphosarcomata, such as has been described by Kundrat, Sternberg, MacCallum and others. In the large areas there was extensive degeneration of the tumor cells with much growth of connective tissue, which gave a scar-like appearance to the sections. In the retroperitoneal glands tumor cells were found through the section, but rarely involved the entire node. The small masses in the kidney proved to be typical secondary growths without any evidences of cicatrization. Small growths were also found in the pericardium, and fairly extensive growths in the pancreas which showed besides an extreme grade of chronic intra-acinar and perilobular pancreatitis. The only explanation for the autopsy findings is that there must have been extensive and widespread degeneration of the tumor masses covering the peritoneum and in the wall of the intestines, with partial healing by the formation of connective tissue. Exactly what caused this change in the tumor growth it is impossible to say, and it is doubtful whether the laparotomy exerted any influence in this direction. It is more probable that these tumors of themselves retrogressed.

The Present Status of Our Knowledge of Heredity in Tumors

DR. E. E. TYZZER, Boston: The conception of cancer as an inherited condition is apparently less generally held than formerly, and this aspect of the problem has been somewhat neglected during recent years. A great part of the investigation bearing on this question has been of a statistical nature, with the object in view of determining whether the incidence of cancer is greater in the parents or the antecedents of cancer patients than in the antecedents of non-cancerous patients. Such inquiries have furnished results that are often diametrically opposed. Most of the more recent statistical investigations have yielded results which fail to establish the importance of heredity in cancer. Pearson, working with data derived from the Middlesex Hospital, found a history of cancer in 359 out of 2,368 antecedents of cancerous patients as compared with cancer in 102 of 753 antecedents of non-cancerous patients. With an estimated probable error of .04, the coefficient of .0335 for the cancer heredity is of no significance apart from the fact that it tends to show that heredity is not an important factor in the incident of cancer. More recently Bashford and Guillot, each employing the statistical method, have obtained similar results. Another mode of inquiry has to do with the frequency of cancer in certain families. The great frequency of cancer in certain families is generally recognized, for example the famous family of "Madame Z.," reported by Broca, in which there were 15 deaths from cancer in 26 offspring which attained the age of 30 years. Statisticians, however, point out the rarity of such families, and, from a consideration of the general distribution of cancer in the population at large, regard their occurrence as coming within the law of probabilities. The subsequent history of the above-named family is at the present time being investigated by Ledoux-Lebarde. The experimental side of the study of heredity in cancer has been for the most part neglected. Whether epidemics of cancer in mice, such as have been reported by Borrel, Michaelis, Gaylord, and others are to be attributed to heredity remain undetermined. It would appear that, inasmuch as statistical inquiries with regard to heredity in cancer lack accuracy and are surrounded by almost insurmountable difficulties, the only solution of this problem lies in the experimental breeding of short-lived animals. In this way only will it be possible to control the conditions under which the animals live, and to obtain accurate data concerning the incidence of cancer. In one of the families of mice which I have kept under observation there were 65 offspring of a mouse with a tumor of the lung, and tumors developed in 20 or 32 per cent. of these. These results, although not conclusive, indicate that this subject demands further investigation.

DISCUSSION

DR. LEO LOEB, Philadelphia: It seems to me that the cases of the so-called endemic occurrence of tumors, as found by Hanau and myself, and later by other investigators, point strongly to the existence of hereditary factors in the etiology of cancer; they certainly cannot be ascribed to accident. The statistical studies of cancer in man take no account of the great differences that exist in different varieties of cancer; and until statistics take account of such variations and are made to refer more particularly to specific varieties of tumors, they will not have much value in deciding the importance of heredity. Dr. Tyzzer's breeding experiments, however, attack this problem in an exact manner.

DR. JAMES EWING: I think that Dr. Loeb's remarks have an obvious application to the field of heredity. Some tumors show a different relation to heredity from others.

Report on Rat Carcinoma

DR. SIMON FLEXNER, New York: At previous meetings of this association Dr. Jobling and I reported on a rat tumor which developed from the seminal vesicle. When the study of the tumor was first taken up it was regarded as a peculiar sarcoma, and when the tumor had undergone certain changes in the course of transplantation it was regarded as a probable carcinoma. The tumor has now been propagated for about four years and has passed through many generations. At present it presents the characteristics of an adenocarcinoma, of pure and beautiful type. The carcinomatous structure became dominant in the fifth generation, at which time the first lymphatic gland metastases appeared; but at that time and for many subsequent generations the tumor had not assumed a pronounced adenocarcinomatous form. Since about the twentieth generation, however, this form of structure has become established, but in the earlier generations the transplantations of a given tumor would yield in some rats a pure adenomatous growth, and in others an imperfect adenomatous or a mixture of adenomatous and simple carcinomatous growth. We have concluded from these observations that as the type of tumor was slowly changing toward adenocarcinoma, which has now become predominant, the change was affected by the individual animals in which the tumor was implanted. In other words, that two sets of forces affected the result; the one being latent in the tumor and the other being present in the organism of rats inoculated. A minute study of the original tumor showed the existence of definite carcinomatous alveoli within the mass arising from the seminal vesicle, and that these alveoli were located close to the original epithelium of the vesicle from which it was derived. The mass of the tumor, however, was of much less definite organoid structure. The minute study has also rendered it probable that the original tumor was of a teratomatous or embryonal nature.

Comparison of Conditions that Regulate the Growth of Transplanted Tumor and Transplanted Embryo

DR. PEYTON ROUS, New York: Much is now known of the behavior of transplantable tumors in the new host, of the conditions which regulate transplantation, and of the phenomena immediately concerned with growth or death of the introduced neoplasm. But there has been no successful attempt to determine what is here peculiar to tumor as apart from that common to transplanted tissues in general. Schöne

(*Beitr. z. klin. Chir.*, 1908-09, lxi, 1) has directed an investigation specifically to the point, but the method he employed—transfer of skin from the back of one mouse to another—proved ineffective. The transplantation was seldom successful except in blood-related animals. For experiments hashed mouse-embryo has been used. A host of workers have proved that embryonic tissue introduced into another animal fails to give rise to a true neoplasm; but they have also shown that for a period it will grow. Mouse embryo seemed especially favorable to my purposes because of its rapid development and retrogression, as well as because of the ease with which it can be handled. Since tumors of the mouse are transplantable, parallel observations were often conducted through the injection of a definite quantity of tumor in the subcutaneous tissue of an animal's one side and of embryo on the other side. In this way the following facts have been ascertained: 1. Mice differ much as hosts for transplanted embryonic tissue. In one it may grow excellently, in another not at all, and in a third but slightly. These variations in fate of the grafts are not due to variation in the elements composing them. The tissues which survive transplantation (mainly cartilage, squamous epithelium and connective tissue) are well distributed in the embryo-hash and can be found alike in the grafts that "take" and in those that do not. 2. The growth or failure of implanted embryonic tissue depends on the appearance or non-appearance of a reaction from the host-tissues analogous to that for implanted tumor. If the bit of neoplasm is to grow, the host furnishes it a stroma and vascularizes it. So too with embryonic tissue. When a tumor graft fails, all of it becomes rapidly necrotic except those cells at the edge, in contact with the host tissues, and presumably nourished by diffusion from them. The same is true for an embryo graft. 3. The conditions of age, nutrition, race and "soil," which play an important part in the success or failure of a tumor graft, play the same part for embryo grafts. Embryo grafts grow best in young animals, in well-nourished ones, in those of the same variety, and better in the subcutaneous tissue of the mother than in that of controls. When mouse-embryo is introduced into rats it survives for some days, and a vigorous connective-tissue reaction from the host appears, but despite this it fails to develop as it would in animals of its proper species. The same is known to be true for tumor. 4. An immunity to embryo grafts can be produced by injections of embryo, just as immunity against implanted tumor is obtained by tumor injection. Whether it is possible to immunize with tumor against embryo is a point I have not yet tested. But Schöne has found that the converse holds: animals can be immunized against tumor by embryo injections. These observations cannot be taken as evidence for Cohnheim's theory of tumor origin. They fail to touch on that property of continuous growth which ultimately distinguishes tumor grafts from embryo grafts and tumor from all normal tissue. But they show that the natural immunity of an animal to transplanted tumor is not the expression of a special tumor immunity but only an example of tissue immunity. The immediate mechanism of protection as well as the conditions (so far as we know them) which determine it are the same for a normal tissue and for tumor. Acquired immunity to transplantable tumors is not an unique phenomenon but an instance of acquired tissue immunity. These facts are difficult to reconcile with the theory of a parasitic origin for cancer.

DISCUSSION

DR. E. E. TYZZER, Boston: In my opinion the failure of a tumor-graft is consequent on a reaction in the surrounding tissues, inflammatory in its nature.

DR. C. R. STOCKARD, New York City: I have made many transplantations of the embryonic tissue of lower animal forms and have found the success of the graft to depend largely on the organ into which it is implanted. Liver tissue did better when transplanted into livers than elsewhere. I have further noted that the nearer the age of the part and that of the transplanted tissue are, the better are the results obtained. Embryonic tissue succeeded especially well when implanted in young animals, because these animals were more nearly of its age, developmentally speaking, than older ones. I have also observed that embryonic tissues at different periods of development manifest differences in transplantability. I think that all these factors must be considered in interpreting Dr. Rous's results.

DR. P. ROUS, New York: In all my work the same site for implantation was used—the subcutaneous tissue of the side. Differences in transplantability, due to differences in the developmental period of the embryos, have been recognized by a number of observers. Because of this factor I employed mouse-embryos from 1.0 to 1.6 centimeters in length. Within the developmental limits thus assigned no important differences in transplantability are to be found. Only embryos of the same litter, and therefore of the same period of development, were taken for the hash used in a given experiment. Some of the most recent results are at variance with Dr. Stockard's finding, that the nearer the developmental period of host and implanted tissue are the better will be the results of the graft. An embryo-hash was injected into a number of mice born from one to three days previously into a series three-quarters grown and into some old ones. In those three-fourths grown the introduced tissue did better than in the old, as was to have been expected; but in the very young animals, practically no growth of it took place. The phenomenon is probably to be explained in terms of tissue avidity. The actively growing tissue of the very young mice may be supposed to take up with great avidity the nutritive stuffs of the body, and the introduced fragments of embryo are ill situated for competition. Fragments of the same sort in an older host have to compete with relatively inert tissues.

(*To be continued*)

PHILADELPHIA AND NEW YORK NEUROLOGICAL SOCIETIES

Joint Meeting, held in Philadelphia, Dec. 18, 1909

DR. T. H. WEISENBURG, President of the Philadelphia Society, in the Chair

Tic of the Tongue

DR. CHARLES S. POTTS, Philadelphia: According to Meige and Feindel, uncomplicated tics of the tongue are very rare. In this case while other muscles have been and are now at times affected, the movements of the tongue are those which are most prominent. The patient, A. G., is 45 years of age, married and is a house painter by occupation. One sister had chorea and his father was a man of very nervous temperament who treated the patient, when a child, very roughly. The man has used tobacco and alcohol moderately and until a year ago, coffee excessively. Until he was 20 years old he was in good health. At that time a skin eruption of some sort appeared on each side of the mouth; this annoyed him and he would draw up the corners of his mouth in an effort to relax the skin; this was followed by closing the eyes (blepharospasm). Then he began to have biting movements, bringing the teeth together with such force that a number of them were broken off. The muscles of the neck and shoulders also became affected. These various movements continued for five years, when they disappeared, and nothing of the sort was manifest for fourteen years, although during this period he had several spells of what he terms "nervous breakdown." Six years ago, without ascertainable cause, he began to have spitting movements, which were followed by paroxysmal protrusion of the tongue. At present at times there are quick contractions of facial and neck muscles, with at long intervals the emission of an explosive sound as is sometimes made in spitting. The most striking phenomenon, however, is a wide opening of the mouth with a quick protrusion of the tongue; usually this is so pronounced that the palatal arches are markedly drawn forward and at times the tip of the epiglottis is visible. The entire organ is hypertrophied, the papillæ being much enlarged. Speech is not interfered with. At times while walking he makes a half turn to the right and elevates the right leg. Physical examination is negative, except that the knee jerks are increased and a chronic pharyngitis is present. The man conducts his business and sleeps

well. The movements are much worse at some times than others, being almost absent for days. They are always worse when he feels unwell from any cause.

Case of Amyotrophic Lateral Sclerosis, or Lead Poisoning

DR. JOHN K. MITCHELL, Philadelphia: The variations in the form of lead intoxication are many, ranging from the more common simple peripheral neuritis to cases like the present, which in advanced stages can in no way be distinguished from amyotrophic lateral sclerosis. In saturnine poisonings involving the spinal cord we see now and then some which altogether resemble chronic poliomyelitis, loss of power advancing steadily and equally with the wasting of the muscles. In another form motor weakness is the earliest symptom and atrophy occurs only as a later manifestation, with unchanged sensibility and the reflexes preserved or increased. The present case is of another type and from the first has progressed, so far as can be learned from the patient, in a manner impossible to differentiate from an amyotrophic lateral sclerosis. Indeed it is only the previous history of serious lead poisoning which suggests the probability that the trouble owes its origin to lead. The chief objection to this theory is the difficulty of accounting for the continued action of the poison so long after all possibility of its entering into the system has ceased. There is no evidence at this moment of the presence of lead in the body. In the history only a very slight ocular muscle enfeeblement is described, a point of difference from asthenic bulbar [illegible]. Dr. Cadwalader, who has been much interested in the case, has suggested, as favoring the probability of a saturnine origin, that the supinator longus has escaped any enfeeblement, as it usually does in lead neuritis. Gowers, Putnam, and, recently in the *Review of Neurology*, S. A. K. Wilson have described similar cases, some certainly caused by lead, others with a strong probability in favor of such a cause.

The patient is a house painter aged 53. He has never had wrist drop. He worked at painting until three years ago from this time. Until one year ago he had charge of kennels at Irvington-on-Hudson. About a year after recovery from the second attack of lead colic in 1907, the present difficulty began; the first symptoms were stiffness, soreness, and occasional cramps in muscles of the thigh and legs. Beginning in the autumn of 1907, these symptoms lasted about seven months. In the spring of 1908 he observed twitching of muscles of legs, arms and trunk, together with difficulty in walking. In October, 1908, he perceived a slight difficulty of speech. For three months there has been definite bulbar speech. He has lost much flesh; arms were weak for four months. There is no nystagmus — pupils react to light promptly. There is no bladder or rectal difficulty. Gait is spastic-paralytic; station—slight swaying. There is no facial paralysis, but there is faint tremor of facial muscles; the tongue cannot be protruded beyond the teeth nor elevated, it is tremulous and presents some fibrillary twitching but no atrophy.

Dynamometer: The right is 30 and the left 33; the man is right handed.

Examination: The patient is very thin, but there is no characteristic atrophy. Muscles are almost symmetrically wasted everywhere. Knee-jerk is exaggerated. Ankle-jerk is present and active; there is no ankle clonus; plantar reflex is normal; no Babinski. He has fibrillary tremors of muscles; no intention tremors. Muscles of hands are much wasted. He chokes when he takes liquids, but there is no regurgitation through nose. Pupils are equal, react well to light and accommodation. There is no impairment of ocular movement. Electric examination shows equal response to the negative and positive currents below the knees, but there is small faradic response above the knees, and in all the arm muscles, except the extensors of right hand, the response is less to faradic than galvanic current, but no reversal. In extensors of right hand the response is nearly gone to both currents, still no reversal. The face muscles give good response. The voluntary movement of the arms is free in all directions.

Second examination, after five weeks' treatment, Nov. 24, 1909, by Dr. Cadwalader: Condition is slightly improved over first statement. Abdominal muscles are normal. All muscles of forearms, extensors and flexors are atrophied but equal. Possibly the extensors are more affected than the flexors, more so on right than on left side. Still there is no actual wrist drop. The interossei of both hands, also hypothenar muscles on both sides are much wasted, the right being worse than the left. All movements can be well performed, although weaker than normal. Biceps and triceps jerks are increased, but equally so on both sides. Muscles of legs below the knees are much atrophied, more so on right than left. There is no contraction or fibrillary twitching. The anterior tibial muscles are more affected than the posterior, so there is foot drop on both sides. There is flexion of toes on soles to irritation. Tendon Achilles jerk is present—both are diminished, poorer on right than left. Knee jerk is quicker and more active than normal, the left being more so than the right; but on account of the atrophy of the muscles there is very limited extension of leg. All movements are performed except dorsal extension of foot, but weaker and slower than normal. The muscles of the inner side of the plantar surface of the feet appear to be atrophied—more so on the right than on the left. There is fibrillary contraction. All muscles of the thigh show fibrillary contraction and are atrophied, the right more than the left. The right arm and leg are slightly weaker and more atrophied than the left. Speech is distinctly bulbar in character but clearer than on admission. Trouble swallowing, especially liquids. There are no clonus and sensory changes. The eyes show slight nystagmus on reacting the limit of conjugate movement, especially to right. There is some loss of capillarity. Vision and fields are normal.

DISCUSSION

DR. B. SACHS, New York: There can be no question about the involvement of the central nervous system. The appearance of the tongue alone would necessarily place it in the category of cases that involve the bulb, and, as such, there would be very little difficulty in acceding to the diagnosis that it is a lateral sclerosis. The reflexes are present without being very much exaggerated and I have often felt that in case of amyotrophic lateral sclerosis as in spastic paraplegia a balance is reestablished between the two diseases. In this case a balance is established between the amounts of affection of the gray matter and the two systems of tracts. In amyotrophic lateral sclerosis much more of the gray matter than the white matter is involved. This case could very well be a combination of two things, that is, involvement of the peripheral nervous system together with lead intoxication, which diminishes the value of some of the symptoms which would ordinarily appear in a general amyotrophic lateral sclerosis.

DR. M. ALLEN STARR, New York: I agree with Dr. Sachs in feeling that in this case we have the evidence of a lesion of the central nervous system, and am much more inclined to the diagnosis of amyotrophic lateral sclerosis with bulbar palsy than to lead neuritis or to lead poisoning. While we must admit that in the majority of cases of lead poisoning the effect of the lead is marked on the peripheral nerves, yet we must also admit that there is considerable effect on the central nervous system. Many cases are on record of autopsies following lead poisoning—notably those reported by Schulze in *Archiv. für Psychiatrie*, in which marked lesions of the anterior horn cells were found in connection with the lead palsy. In three severe cases of lead palsy under my care, involving both arms and legs, confining the individual to bed and putting them in a greater invalid state than the man exhibited by Dr. Mitchell, there were also marked cerebral symptoms, and in two cases severe headaches and in one very marked obscuration of mental action. It seems that were the degree of toxic effect sufficient we should also have the other symptoms of lead encephalopathy.

Case Presenting the Symptomatology of Paramyoclonus Multiplex

DR. D. J. MCCARTHY, Philadelphia: The patient is a laboring man, aged 29, with a negative family history except that his father was strongly alcoholic. Since birth he has been affected with marked muscular activity of the right upper

extremity. All the muscles are involved in irregular quick contractions causing the arm to move about in a jerky fashion. There is no atrophy or hypertrophy and no cranial nerve involvement; sensation is normal and station and gait good. There is some mental defect and it is probable that the motor restlessness manifested in the arm is of cerebral origin.

DISCUSSION

DR. J. RAMSAY HUNT, New York: I agree with Dr. McCarthy that the symptoms indicate a cerebral lesion. I am not inclined to call it even a symptomatic paramyoclonus multiplex. As I understand it, paramyoclonus multiplex is a disease in which muscles are represented and not movements. In other words, it is referable rather to the cellular processes of the spinal cord than the Rolandic area. Of the true paramyoclonus multiplex I have seen only two cases. One was in Europe and one was a case I have recorded and in which I had an opportunity of examining the central nervous system. In that case the patient showed while at rest absolutely no evidence of any involvement. As soon as the skin was exposed the muscles were seen to be jumping and vibrating in all directions independently of each other. That is, the supinator longus muscle would stand out in conjunction with the deltoid. I would be more inclined to regard this case as coming under the groups of congenital athetoid movements or tremor.

DR. MORTON PRINCE, Boston: I have always had the concept of paramyoclonus as involving the muscles rather than movements. The disease is very rare. A case which I once saw and which seemed to me to be a typical case of paramyoclonus, was a case of traumatic neurosis following an accident in which there was rhythmical contraction of the rectus femoris night and day. This case bore out the theory that paramyoclonus is a functional disease. The disease was apparently cured, at any rate the movements entirely ceased after manipulation which it would not seem possible could have any influence. The attending physician, without knowing what he would do, stretched the sciatic by the old method of doubling up the legs on the body, and almost immediately after that the movements ceased entirely.

DR. L. PIERCE CLARK, New York: My experience in these cases of paramyoclonus has been entirely confined to those associated with epilepsy. I have reported ten cases of this type and think that the type of movement Dr. McCarthy's patient exhibited is not dissimilar to most of those cases reported. The point about it is that it has not generalized itself more and has kept itself more or less confined to the proximal muscles. The more one sees of these movements the more he agrees with Oppenheim that they belong to the myoclonus type and that the slight differentiation in the type of movement is really in the mind of the observer rather than in the trouble itself. These movements vary considerably in their range and character. Sometimes they may be fibrillary, sometimes single muscle effects, sometimes enough to give a locomotive effect.

DR. MCCARTHY: The title was given as it was because I did not consider the case one of paramyoclonus multiplex. It was rather hard to present a title for the condition. The mere fact that the condition is congenital, whereas Friedreich's type is acquired, together with the type of symptomatic manifestation, practically excluded paramyoclonus multiplex.

(1) Athetosis and Astereognosis of Sudden Onset. (2) Athetosis and Astereognosis of Gradual Onset, Associated with Signs of Multiple Lesions

DR. F. X. DERCUM, Philadelphia: Both cases are anomalous and both are presented for purposes of diagnosis. The first patient is a man of about 35 who three years ago had headache and vomiting. In July, 1909, he became unable to use the left hand well and could not recognize objects with it. There is hyperesthesia and loss of sense of position up to the elbow, pressure sense is preserved. The hand also shows athetoid movements. There is slight involvement of the left foot, slight facial paresis and dilatation of the left pupil. The examination of the feces, urine and blood and the Wassermann test are negative.

The second patient is a woman above middle age who three years ago first noticed numbness of the feet and felt as if she had stockings on even when the feet were bare. She could not use the left hand properly and could not recognize objects with it; she also showed athetoid movements in both hands but more markedly in the right. There is hypesthesia to touch only. There is also an area on the left side from the sixth to the ninth rib which shows loss of sensation. Both cases suggest multiple lesions of the brain and the second case of the cord also.

DISCUSSION

DR. SMITH ELY JELLIFFE, New York: It strikes me that the first case is a very interesting one of partial thalamic syndrome as described by Dejerine and Roussi, yet there is one characteristic symptom lacking, as there should be hemianesthesia, including loss of the deep sensibilities, muscle and joint sense. Dr. Dercum did not say anything about the tuning-fork test. The slight degree of hemiplegia here exists only in the facial muscles, practically disappearing in the other portions of the body, and conforms in large measure to the thalamic syndrome.

DR. MORTON PRINCE, Boston: In the first case there is similarity to the thalamic syndrome, but the patient unquestionably has tingling in the left hand. It is interesting, also, in this case to point out the marked disproportion between the loss of the sense of position, muscular sense and sense of localization and the loss of tactile sense.

Treatment of Spasticity by Resection of Posterior Spinal Roots

DR. WILLIAM G. SPILLER and DR. CHARLES H. FRAZIER, Philadelphia: The case presented is one in which extreme spasticity of the lower limbs had resulted from injury of the back. The motor power of the lower limbs had been excellent, but has been greatly interfered with by the spasticity. Sensation in these limbs had been normal. The patient had been unable to abduct the thighs, and had walked with extreme difficulty, supported by a cane and crutch, dragging the toes of one foot behind the heel of the other foot. He had been unable to put either heel on the ground because of the spasticity in the calf muscles. The second, third and fifth lumbar roots on each side were resected. Considerable pain was felt in the lower limbs following the operation, but after the degeneration of the cut roots became complete pain ceased. The operation was performed about three months ago. The man is now able to abduct the thighs and to flex and extend the legs on the thighs, almost in normal degree, but he still has some spasticity in the feet, as none of the sacral roots were cut. Sensation is lost in the distribution of the second and third lumbar roots of the right thigh, as given by Seiffer, and greatly impaired in the corresponding distribution of the left thigh, showing that anesthesia may be produced by division of two adjoining roots. The operation is permissible when spasticity is great and motor power is slightly or not at all diminished.

DISCUSSION

DR. L. PIERCE CLARK, New York: Dr. Alfred Taylor and I have adopted this type of operation for the past few months. Our first operation was done about the middle of August on a patient with cerebral diplegia. The two following were for hemiplegia of the upper extremity. We presented all three cases before the Pediatric Society in New York in November. It is an interesting thing to note the genesis of this idea of posterior root section. One will find in the literature of twenty years ago the statement that this operation may bring about a betterment in the state of spastic palsy, but apparently no one had cared to take the risk of operation, not knowing which particular segments should be attacked to overcome the spastic state. The most careful analysis of the work was done by Dr. Fraenkel in 1909 and 1903, in which practically the whole theoretical matter was brought to the point of actually applying it on the clinical side. An interesting point was Dr. Fraenkel's having under his control the administration of stovaine in a case of diplegia at the Montifiore Home, where for a period of 45 minutes the patient was able to get up and walk about quite easily, something he had not been able to do before, and at the end of 45 minutes returned to his helpless state. That fact alone influenced me to ask Dr. Taylor to operate on some of my patients.

Division of the Auditory Nerve for Persistent Vertigo and Tinnitus

DR. CHARLES H. FRAZIER, Philadelphia: The patient was a woman of 56, who had suffered from tinnitus and vertigo for several years. There was some difficulty in separating the eighth nerve from the seventh, and although the seventh did not appear to have been injured there was for some time following the operation slight paralysis of the seventh nerve. In this case there was found a year after the operation to be very little relief from the tinnitus and vertigo. In all eight patients have been operated on by different surgeons. Three died as a result of the operation and only one has been much benefited.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, Held at Omaha, Neb., Dec. 20-21, 1909
(Continued from page 230)

Intestinal Suture

DR. ARTHUR E. BENJAMIN, Minneapolis: 1. Instruments or buttons for making an intestinal anastomosis have practically all been discarded for the suture, as there is less loss of tissue thereby. 2. The purpose of these instruments in the past was to facilitate making an anastomosis and to render the operation more safe. 3. The sutures are to prevent hemorrhage and to approximate like structures until a firm union has taken place, after which they should be absorbed or passed off into the intestines. 4. The side anastomosis is chosen because of the positive blood supply, its safety and ease of performance. 5. The preparation of the patient by careful selection of the diet, proper attention to waste-product elimination, stomach washings, etc., go a long way toward bringing success in these operations. 6. Pagenstecher's thread is largely used for the outside sutures in bowel work. As it is a foreign substance, it may provoke unnecessary adhesions and call for further operative procedures. 7. The linen thread can be used with safety for the inner line of suture, and, when properly placed, prevents hemorrhage or leakage and is soon eliminated. 8. This inner suture should be so placed as to prevent pursing or narrowing of the anastomotic opening. The through-and-through back lock stitch is suitable for this purpose. 9. The chromic catgut makes an admirable suture for the outer layer, and when used as a continuous Lembert suture, outside of the Pagenstecher lock-stitch, a safe and satisfactory union occurs. 10. Care should be observed in performing operations to avoid contamination. 11. The after-treatment of the case is very important. Food should not be given too early so as to avoid undue tension on the suture line.

President's Address: The Past, Present and Future of the Western Surgical and Gynecological Association

DR. A. L. WRIGHT, Carroll, Iowa: The conception of surgeons in the West uniting and forming an association for the sole purpose of discussing questions of interest to them only, originated with Dr. Milo B. Ward, a specialist doing abdominal surgery in Topeka, Kansas, who is reported to have said that to accomplish the purpose of its creation it was necessary that its membership should be limited; that it should be representative in character, and though its conditions of admission be exacting, they should not be used for a selfish motive. The intention was not to exclude meritorious candidates, but to prove their qualifications, and place a high value on the accumulative results of those associated and working together along scientific lines for a definite purpose, the increase of surgical knowledge and technic, the alleviation of suffering and prolongation of human life.

The initiative of the association was primarily the betterment of the members surgically and demanding from the public the respect and confidence their skill merited. This confidence in the ability of each other has done much to make it possible for the surgeon in the small town to relieve serious emergencies with minimum suffering and loss of life. Formerly the idea prevailed that special skill existed in the densely populated centers only. The tradition is rapidly passing away. Each and every man is better for having been a member of this association. His influence has aided materially in removing the evidence of weakness and in placing the organization on so firm a basis. If this standard be maintained we must not lose sight of the fact that the honest and conscientious surgeon is not born, but gains his knowledge, skill and dexterity by persistent, painstaking labor and constant application to a science more sacred than life itself. The qualifications of surgeons differ in many respects, depending on education, environment, personal experience and individuality. I cannot refrain from mentioning the influence of young men specializing in surgery before their mental faculties have fully expanded. This injures the mind and warps the intellect of the student by depriving him of adequate medical and literary training, so essential to the thoroughly equipped surgeon.

In order that the present position of the association be maintained, the credentials of each applicant for membership should be carefully examined and only those admitted who are known to be proficient in the science and art of surgery through long service, wide experience and close application to the principles underlying an almost exact science. An effort should be made each year to infuse new blood. This will add vigor, strength and a new working element that will maintain the association in its present position.

A Deceptive Form of Appendicitis in Women

DR. H. S. CROSSEN, St. Louis: There is an unusual form of appendicitis that proves very deceptive when occurring in women, because in its clinical characteristics it closely resembles adnexal disease. The mass is situated in the tubo-ovarian region, and, furthermore, it develops so gradually and with so little acute disturbance that it is suggestive of a new growth rather than inflammation. These deceptive features are fully accounted for by the pathologic changes found at operation. The exact pathologic condition is not clear, however, when first exposed, for the mass seems to be within the cecum and involving its wall. The cecum with the contained mass is movable and may be picked up and palpated between the examining fingers, and gives the impression of a new growth or other intracecal mass extending from the ileo-cecal valve to the lowest part of the cecum. The appendix is nowhere visible. Within the last thirteen months I have had two cases of this character and both of the patients came under my care with a diagnosis of tumor (new growth) presumably adnexal. In each case the mass, when exposed and directly palpated, was suggestive of a serious lesion of the cecum and ileocecal junction, possibly requiring extirpation of the cecum. The two cases were practically identical in their peculiar features, and they are good examples of a distinct class. That is interesting when considered from the standpoint of diagnosis or from the standpoint of treatment.

The points of special interest are as follows: 1. The location of the mass in the tubo-ovarian region instead of in the appendix region. In the first case, palpation about McBurney's point showed no trouble there, and in the second case simply the edge of the mass extended to the appendix region. 2. The scarcity of inflammatory symptoms. Each patient was ill several months and quite a mass had formed before any acute symptoms appeared, and when they did appear they were comparatively mild. 3. The apparent intracecal character of the mass was a striking feature and was due to the folding of the cecal wall about the chronically inflamed appendix. Because of the special relation of the appendix to the cecum or because of the chronicity of the low grade inflammation, or both, the infiltration and adhesions affected principally the wall of the cecum adjacent to the appendix. The affected appendix was buried in the overlapped cecal wall. This is what gave the feel of a mass within the cecum and affecting its wall, and it was this also which made it so difficult to locate and expose the appendix. This peculiarity is important from the standpoint of treatment for, unless carefully investigated, such a condition might be treated by extirpation of the cecum under the mistaken supposition that the mass was intracecal and malignant or tuberculous. This peculiarity helps to account, also, for the dislocation of the mass. As the cecum with its mass was fairly movable it naturally dropped downward into the tubo-ovarian region. Later, adhesions formed, fixing it in the abnormal location. 4. The slow absorption of the infiltration

in the cecal wall, after removal of the affected appendix. In the first case, absorption of the infiltration in the wall of the cecum required nearly a year. In the second case in which pus was found the absorption of the infiltration was more quickly accomplished, requiring only about five months. Fortunately in both women the abdominal wall was thin and permitted of deep palpation; consequently the diminution of the cecal induration could be accurately followed. The fact that the condition described is likely to lead to mistakes, is illustrated by the following incidents: In an eastern museum a specimen labeled "Absence of the Appendix" showed on dissection the condition mentioned above, i. e., an overlapped cecal wall enfolding the inflamed appendix. Again, in a patient related to me, a cecum resected for supposed malignant disease, with fatal result, revealed on subsequent examination the condition above described, i. e., the supposed tumor consisted simply of the inflamed appendix surrounded and completely hidden by the cecal wall.

Surgical Treatment of Hyperthyroidism

DR. W. D. HAINES, Cincinnati, Ohio: After a review of the literature, embryology and anatomy of the thyroid gland, it may be stated that the syndrome called goiter is due to over-activity of the adrenals induced primarily by an excess of thyroglobulin in the blood. Discrepancies of opinion in the past have been due to lack of definite knowledge of the actual changes taking place in the gland at the time of observation. Laboratory study has shown a local hyperemia with increase in colloid and diminished staining reaction, but no gross changes in the glands in the first stage; this is followed by hyperplasia or the second stage. Imperfect alveoli lined with giant cells and great loss in colloid mark the third stage; while fibrosis, cell atrophy, sclerotic arterial walls, hemorrhage and cyst formation complete the final steps in destruction. Basing treatment on these findings, I advise diminishing the blood supply by ligating two or more of the thyroid arteries in preference to thyroidectomy in the management of cases of hyperthyroidism with moderately enlarged gland and active symptoms. In the operation for the removal of adenoma or partial thyroidectomy I keep within the thyroid capsule, thus avoiding injury to the parathyroids and recurrent laryngeals.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Financial Rewards of the Physician

That the doctor is not a good business man has passed into a proverb. The explanation that "no man with business instincts and the desire to make money would dream of entering the medical profession," is both unusual and suggestive. This statement appears in the December number of the *New York State Journal of Medicine* in an editorial entitled "The Economics of Medicine." The conclusion that there is "no money in medicine and that no great fortunes can be won in a medical career," while not new, is important.

After discussing the average income of members of the profession and the fact that the cost of living has increased at least 50 per cent. in the last twenty-five years, while the fees for medical service have remained the same, so that the "purchasing value of a dollar which the doctor now gets for a visit is just half what it was twenty-five years ago," the editor calls attention to the additional fact that preventive medicine has in late years greatly decreased the amount of remunerative work for a physician. Pasteurized milk and hygienically prepared foods have greatly decreased the summer diseases of children. Antitoxin and quarantine have greatly reduced diphtheria. Typhoid fever epidemics are prevented or are short-lived. Medical inspection of school children has reduced zymotic diseases. Much of the work being done by physicians in the prevention and extermination of diseases is done without hope or expectation of reward. Since this work is for the benefit of society, the New York editor is perfectly reasonable in saying: "We have a right to ask the public whether it has not also some obligation to the medical profession. Can society expect men to spend ten years in preparation for the most difficult and exacting of professions at a cost of at least $7,500.00 and then reap a reward which is but little more than the cost of the education would earn if put out at legal interest? Medical men have families to support, children to educate. They must pay for their homes and at least strive to provide for their old age. How is it to be done in present circumstances? . . . How can men live decently and honestly whose incomes are decreasing and whose expenses are increasing? . . . Stern necessity in our large cities is driving our men to illegal and dishonorable means of raising money, dishonorable because secret and clandestine. . . . The entire economics of medicine must be placed on a different basis if we are to make any real progress in combating the evils of commercialism."

After discussing the proposition to raise the fees of the general practitioner as a remedy, which proposition he fears would not be successful, "as physicians would not be loyal to each other," and deciding that the end can only be obtained through organization, the New York *Journal* concludes: "We cannot protect ourselves as individuals. We cannot as individuals ameliorate our present condition. Why should we hesitate to make use of the only agency which is a power in the world to-day if we use it justly and with righteousness? In the words of a great statesman, we are confronted with a condition and not a theory. We need a remedy lest worse things happen to us. Is there a remedy? Is it capable of application? Who will suggest a better remedy? How can any remedy be applied without organization? These are serious questions and require reflection. The opinion of the profession is desired. . . ."

These *are* serious questions. The views of the profession, not only in New York, but throughout the country, will be of great value. Carefully, fairly and dispassionately these questions must be discussed and settled by the medical profession of the present generation or the profession and the people of future generations will suffer. The physicians of the United States must unite to enlighten the public on the danger of ignorant, ill-trained and poverty-stricken physicians and on the duty of the public to support and encourage, both legally and economically, a medical profession which can afford to be disinterested, unselfish and philanthropic. If this is not done, the next decade will see the standard of the medical profession lowered simply through force of economic pressure. The danger and the loss from such a change will fall far more heavily on the public than on the profession. It is the duty of far-sighted physicians, however, to sound a warning and to lead the way in enlightening the public.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—First Weekly Meeting

General Subject for the Month: Surgery of the Liver and Gall Tract

ANATOMY OF LIVER AND GALL TRACT

LIVER: Situation, shape, dimensions, surface markings. Surfaces, fissures, important relations. Blood vessels, nerves, lymphatics.

GALL-BLADDER: Shape, size, situation. Fundus, body, neck. Important relations. Microscopic anatomy. Cystic duct. Hepatic duct. Common duct, length, portions, size, relations. Relation of ducts to each other and to surrounding structures. Ampulla of Vater. Blood and nerve supply of bile passages.

LYMPHATIC VESSELS AND GLANDS.

PHYSIOLOGY OF LIVER AND GALL BLADDER

FORMATION OF BILE: Quantity, uses in normal digestion, reabsorption of bile. Function of gall-bladder.

Book Notices

PROCEEDINGS OF THE THIRD ANNUAL CONFERENCE OF THE AMERICAN ASSOCIATION OF MEDICAL MILK COMMISSIONS. [Secretary, Otto P. Geier, M.D., 124 Garfield Place, Cincinnati.] 1909. Stiff covers. Pp. 142.

In the report of the Atlantic City meeting of 1909 of the American Association of Medical Milk Commissions, a great amount of valuable information in reference to milk production is compiled. There are now, according to this report, 56 medical milk commissions in the United States, and these represent 22 states. Out of these 22 states only 3 protect the name "certified" as applied to milk of high standard. These states are New York, New Jersey and Kentucky. Attention is called to the necessity of other states following this example. Reports of the various milk commissions now in operation were read at the meeting. One of the points emphasized was that inspected milk, by which terms a second grade of milk is understood, should be produced and the sale encouraged. It has been the experience of many milk commissions that the general milk supply of a community is improved by the establishment of a milk commission. In one of the reports it is stated that the physicians are not interested in the production of certified milk. This not infrequent state of affairs is a great hindrance to the success of milk commissions. A similar statement is made in regard to the daily press, which is usually not willing to give space to a matter of such importance as a pure milk supply.

In a paper by Joseph S. Evans on "The Present Status of Commercial Pasteurization of Milk," the author says, "As to pasteurized milk producing scurvy, rickets, etc., that is practically ancient history." Sane views on pasteurization, like the one quoted, should be more frequent.

The chemical requirements of certified milk are discussed. We miss the adoption of the Hart test for proteids, which is simple, accurate, and suitable for routine examinations. This test should be generally practiced. In the paper by Francis H. Slack on the bacteriologic methods of milk examinations, stress is laid on the importance of realizing that the bacteria in milk are of various nature and by proper temperature of incubation fecal bacteria can be differentiated from air bacteria in a rough way. It seems, however, that the statement of numbers obtained at 37° after two days being equal to the number obtained at 27° after three days and to the number obtained at 22° after five days has not met general assent. Usually a higher number is obtained at 22° after three days than at 37° after two days, and the lower temperature gives a better differential count. The use of Petri dishes with porous covers has not become general, as the porous covers interfere with the counting of the colonies.

In the report of certified milk contests by Clarence B. Lane, a table gives the records of the milks exhibited by 25 dairies at the Cincinnati exhibition (1909). The numbers of bacteria are from "no growth" to 440,000 per cubic centimeter. It is amazing to find a milk which shows no bacterial growth from one cubic centimeter!

Professor Conn presents a very interesting paper on the character of milk in small communities in which he calls attention to the rather surprising fact that the milk supply in small communities is not as good as in large cities. Professor Park states in a paper that the number of deaths due to the bovine tubercle bacillus in the city of New York is 1.6 per cent of the total number of deaths from tuberculosis. Such work is of special value at present, since the discussion about the value of eliminating all tuberculous cattle is carried on with much heat. The general impression is, however, that even with such small percentage of deaths from bovine tuberculosis—and the last word has not been said on this point—that tuberculous cattle must go. The educational value of showing the farmer that cattle with tuberculosis should be eliminated is not to be overlooked.

The report finally gives a list of all the milk commissions now existing in the United States, and the members.

The present status of the milk problem is well presented in this book and the preceding. The important points of production of certified, inspected and pasteurized milk are treated and the beneficial influence of medical milk commissions on the general milk-supply and on the relation of these commissions on infantile death-rates are emphasized and deserve close attention by the public at large, and especially by the practicing physician.

A MANUAL OF THE WORKING METHODS AND STANDARDS FOR THE USE OF THE MEDICAL MILK COMMISSION. Paper. Pp. 24. Compiled by the American Association of Medical Milk Commissions. [Secretary, Otto P. Geier, M.D., 124 Garfield Place, Cincinnati.] 1909.

The manual explains the purposes of inspection and examination of dairies producing certified milk, gives the standards adopted for chemical and bacteriologic examinations of certified milk, and an outline of the methods by which medical examinations of employees in certified milk dairies should be carried on. Other parts of this manual are reprints of various articles in the report of the proceedings of the Association of Medical Milk Commissions reviewed below.

GYNECOLOGY AND ABDOMINAL SURGERY. Edited by Howard A. Kelly, M.D., F.R.C.S. (Hon. Edin.). Professor of Gynecologic Surgery at Johns Hopkins University, Baltimore, and Charles P. Noble, M.D., S.D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia. Cloth. Pp. 862, with illustrations. Price, $8. Vol. II. Philadelphia: W. B. Saunders Co., 1908.

This work, embracing as it does not only all those operations which are peculiar to women, but also all those pertaining to the abdomen in general, including hernia and also diseases of the breast, marks a wide departure from all previous works on gynecology. It also breaks down that artificial barrier which was raised in an attempt to separate gynecology from general surgery. Of the thirty authors, all but three are from this country and in the list are found the names of some of our best general and special surgeons. The work contains a number of good features which are out of the ordinary. The chapter on "The Pathology of the Reproductive Organs" is one of these. In this chapter is considered the pathology of all of those organs in a consecutive manner. This not only saves much repetition but adds to clearness, as the pathology of one organ is often but an extension by continuity of that of another organ. The necessity for doing more than one operation at one sitting is a common one and a chapter has therefore been devoted to "Combined Gynecologic Operations" in which is considered the character of the various operations which may be combined or advantageously performed at the same time, together with the indications, contraindications, etc. The chapter on "Diseases of the Breast" is particularly good, especially that part relating to benign growths, while that on "Hernia in the Male," as perhaps might be expected, leaves something to be desired. Concerning the illustrations, which are numerous, it is sufficient to say that the most of them are by those master artists, Becker and Brödel.

INTRODUCTION TO PRACTICAL CHEMISTRY. For Medical, Dental, and General Students. By A. M. Kellas, B.Sc., Ph.D., Lecturer on Chemistry at the Middlesex Hospital Medical School. Cloth. Pp. 249. Price, $1.35. New York: University Press, 1909.

As the title page has it, this is an "introduction to practical chemistry for medical, dental and general students, specially adapted to meet the requirements of the conjoint board's examination of the Royal Colleges of Physicians and Surgeons . . . etc." In other words, the book is intended to afford the student a means of a rapid general review of elementary chemistry, such as would be required of candidates for a medical degree in England.

The contents are divided into the five following parts: "I, Simple Preparations of Non-metallic Elements and Compounds;" "II, Preparations of Typical Compounds of the Metals;" "III, Tests for Electro-positive Radicles;" "IV, (a) Identification of Acid Radicles, (b) Identification of Metallic Oxids and Hydroxids;" "V, Qualitative Analysis."

Only a small part of the book is devoted to the teaching of general inorganic chemistry, and still less space is given to chemical theory, the main part of the book being taken up in teaching qualitative analysis. This is done by the help of extensive tables containing the properties and general reactions of the metals, acids and bases, usually met with in qualitative analysis. This device, presenting the facts in such a form as to enable students to make a rapid review of the most important properties and tests of the more common metals, acids and bases, is the only apparent advantage of this book over the many existing publications of its kind.

Medicolegal

Privileged Communications with Reference to Causes of Injury

The United States Circuit Court of Appeals, Eighth Circuit, says, in Missouri Pacific Railway Co. vs. Castle (172 Fed. R., 841), a personal injury case brought by the latter party, that it is obvious that the admissibility of evidence sought to be excluded under section 333 of the Civil Code of Nebraska, must be determined by the facts in each case. That statute provides that no physician, surgeon, etc., shall be allowed, in giving testimony, to disclose any confidential communication, properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice.

In the case of Union Pacific Railway Co. vs. Thomas (152 Fed. R., 365), this court said: "The essential elements of a privileged or a confidential communication under the Nebraska statute are: (1) The relation of physician and patient; (2) information acquired during this relation; and (3) the necessity and propriety of the information to enable the physician to treat the patient skillfully in his professional capacity." In that case the injuries were internal. From what particular disease the plaintiff was suffering, and what was the proximate cause thereof, was in doubt. Under such a state of facts answers to questions as to how the plaintiff was injured, and as to what physical injuries she received were clearly necessary to enable the physician to prescribe, and hence were privileged.

In the case here before the court there was beyond question a crushed right leg about four inches above the ankle. The injury beyond question was caused by one of the defendant's cars passing over the plaintiff's leg. Whether the injury was caused by the plaintiff's or the defendant's negligence was the pivotal question in the case. It was impossible to imagine anything that the injured person could say to the physician in reference to the cause of the injury that would in any way throw any light on the manner of treating the same. How the leg came to be crushed was for the purpose of treatment absolutely immaterial. What the plaintiff told the physician about it was of no assistance whatever to enable him to discharge the functions of his office; and, it is held, was not privileged.

The statute is in derogation of the common law, and often excludes the best evidence. It should not, therefore, be extended to matters of evidence not coming clearly within its provisions, as the object and purpose of all trials is the development of the true facts in each case. The court finds no cases which under similar circumstances have held inadmissible testimony such as was offered in the present case, namely, that the plaintiff told the physician that his injury was sustained by having his foot slip off the brakebeam and onto the "T" rail of the track and having one of the car wheels pass over his foot. But the court finds a number of decisions which hold such evidence to be admissible under similar or like statutes.

Letter Rendering Sister Liable for Physician's Services—Right of Physician Conducting Hospital with Layman to Sue

The Supreme Court of Colorado says that the case of Hall vs. Allen (104 Pac. R., 489), was brought by the latter party against a sister of a patient who had been treated in a hospital operated by plaintiff, a physician, and one Waggoner, who was not a physician, to recover for medical and surgical services rendered to such patient, the defendant's brother. The defendant had written to the plaintiff physician a letter in which she expressed solicitude about the condition of her brother, asked to be let known every day or two just how he was doing, stating: "And we will gladly pay all expense. . . . All of his expenses will be paid later on and we want him to have everything to make him more comfortable," etc. Taken into consideration with the surrounding circumstances, the court is of the opinion that the letter authorized the medical and surgical services from that date on so as to make the payment thereof an original promise on the defendant sister's part, the brother being a young man of 25 years, without means, who was seriously injured while away from his people.

It was contended that there was a defect of parties plaintiff; that error was committed in refusing to allow it to be shown that a partnership existed between the plaintiff and said Waggoner, who had no right to practice medicine, and in rejecting the partnership contract as evidence to establish those facts, but with this contention the court cannot agree. The partnership contract offered concerned the management of the hospital, and provided that the plaintiff, together with one other physician employed by the firm, should perform the medical and surgical work, and also provided for the disposition of all funds received, including those for the services rendered by the physicians. The services in question were the professional services rendered by the plaintiff in his professional capacity, and such an action could not lie in a partnership name, for, so far as Mr. Waggoner was concerned, he was not a physician, and did not attempt to practice or render such services. The Colorado statute prohibits any person from practicing medicine without a license.

It was immaterial to the defendant what contractual relation existed between the plaintiff and Mr. Waggoner, or what the plaintiff should do with moneys received for his services when procured. Neither did it concern the defendant, when suit was brought against her for services rendered by him in his professional capacity, what became of the money, where there was no claim that he assigned or otherwise disposed of it other than by a contract showing that he had a partner in the business covering the operation of a hospital, including the receipts from his professional services. The correct test of when a party is a necessary one, and when a defendant can raise the objection of a defect of parties, is where it appears that some other person than the plaintiff has such a legal interest in the obligation sued on that a recovery by the plaintiff would not preclude its being enforced by such other party and the defendant being thereby subjected to the risk of another suit on the same subject.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

January 8

1 Protective Appendicitis. R. T. Morris, New York.
2 What may be Done to Improve the Hygiene of the City Dweller? S. A. Knopf, New York.
3 *Death in Epilepsy. J. F. Munson, Sonvea, N. Y.
4 *Observations Regarding the Finger Tone. G. O. Williams, Greene, N. Y.
5 Contact Infection in Amebiasis. W. Allan, Charlotte, N. C.
6 *Puerperal Septicemia Treated with Diphtheria Antitoxin—Recovery. E. M. Deacon, Birdsboro, Pa.

3. **Death in Epilepsy.**—While the duration of life in epilepsy may be several years, the net result, according to Munson, is death earlier than among normal persons. The causes of death are largely associated with the disease itself, and are either pulmonary or purely epileptic in character. Pulmonary edema is frequent in epileptics; exposure while helpless may cause lung complications, and frequent congestions and edema make the lungs susceptible to germ action. Death is always at hand during seizures, from traumatism, suffocation, or without any apparent cause. Epileptics will always show some signs of seizure after death. The epileptic should never be left to himself or allowed to walk out alone. Patients have fallen by the roadside and died from suffocation due to position, or may die in bed at night from the same cause.

4. **The Finger Tone.**—Finger tone is the term applied by Williams to the sound that may be heard with a phonendoscope by placing the end of the finger on the diaphragm while listening. This tone, says Williams, has something to do with the circulation. It may be heard on any portion of the body, is modified by pathologic conditions, is louder in the male than in the female, and in adult age than in youth, is absent in collapse, and in exposure to cold. A diminished

arterial current reduces the tone. Local arterial obstruction stops the tone. As to its significance, Williams says that an overloud tone in middle or early life should be regarded with suspicion. Overloud tones mean venous obstruction.

6. **Diphtheria Antitoxin in Puerperal Septicemia.**—Deacon reports a case of puerperal septicemia in which infection occurred somewhat late, and the temperature and general symptoms became modified after the use of large doses of diphtheria antitoxin. The patient recovered. The woman was profoundly septic when the antitoxin was given, and the effect of the serum was very prompt.

New York Medical Journal

January 8

7 *Treatment of Pneumonia. F. S. Meara, New York.
8 The Traumatic Neurosis—A Psychologic Mosaic. P. Bailey, New York.
9 *Experimental Studies on the Etiology of Acute Poliomyelitis. I. Strauss, and F. M. Huntoon, New York.
10 Physiologic and Clinical Results of, and Indications for, Gastroenterostomy. S. Harris, Mobile, Ala.
11 *Two Signs of Diagnostic Value; one in Cholelithiasis, the other in Incipient Pulmonary Tuberculosis. R. Abraham, New York.
12 Trachoma. L. J. Goldbach, Baltimore.
13 Ruptured Triceps due to Direct Violence. D. P. Penhallow, Boston.
14 A Duodenal Tube. M. Gross, New York.
15 *The Avery Evacuator. J. W. Avery, New York.

7. This paper will be abstracted shortly in the Department of Therapeutics.

9. **Etiology of Acute Poliomyelitis.**—Strauss and Huntoon made a very careful and thorough experimental investigation into the etiology of acute poliomyelitis, basing their work on the organs from a fatal case sent to them for study. They found that acute poliomyelitis can be produced in a *Macacus rhesus* by intraperitoneal inoculation of the cord of a fatal human case. Unsuccessful attempts to transfer acute poliomyelitis from one monkey to another by intraperitoneal inoculation seem to warrant the assumption that successful subinoculation by this method is an uncertain procedure. Strauss and Huntoon found that the cerebrospinal fluid of acute cases does not contain the virus in an infective state, and therefore the reported bacterial findings in the cerebrospinal fluid are either contaminations, or secondary invaders. When the disease is clinically recognizable, namely, after the onset of the paralysis, the virus is probably no longer present in the blood or at least cannot be used to produce infection in the monkey by intraperitoneal and intradural inoculation. Histologically, the lesion in poliomyelitis is very similar to that in rabies. Furthermore, there occurs in rabies a type of ascending paralysis which is clinically identical with the ascending paralysis (Landry type) of acute poliomyelitis. The authors claim that acute poliomyelitis must now be classed among the infectious diseases. The only objection which can be made to this conclusion is that the disease may be of toxic origin. However, the lesions which the central nervous system present both in many and monkeys are of an inflammatory rather than of a purely degenerative nature such as toxins (diphtheria and tetanus) produce. Moreover, were the disease due to a toxemia, it would be difficult to explain the occurrence of a long and variable period of incubation after intraperitoneal inoculation.

11. **Two Signs of Diagnostic Value.**—The sign which Abrahams has never failed to find in the many instances of gallstone disease which have come to his notice consists in a painful point midway between the umbilicus and the costal cartilage of the ninth rib in the right hypochondriac region. The method of eliciting it is as follows: Place the patient in the recumbent position with the arms and legs extended. Ascertain a point midway between the umbilicus and the ninth costal cartilage, then with a sudden thrust press the index and middle fingers of the right hand into that point. The effect on the patient is like an electric shock; there is either a grimace on the face denoting suffering or a quick involuntary jump of the abdomen as if it were struck with a pointed instrument. As often as the finger thrust is repeated just as often is the painful response obtained. In an acute attack with a diffuse area of hyperasthenia, the midway point mentioned is the point of maximum pain. In chronic cases the painful point is present at all times while the whole area around it may enjoy freedom from sensitiveness. The absence of this point after its repeated presence in a case long under observation argues in favor of a gall-bladder which has got rid of the stones.

The diagnostic sign in incipient pulmonary tuberculosis is designated "the cutaneous temperature." A reliable clinical thermometer is placed at the supraclavicular space of one side, covering the bulb snugly and completely with folds of skin. At the end of four or five minutes the thermometer is removed and the temperature noted. The same is done at the other supraclavicular space and then the temperatures compared. In case both apices are involved the temperature obtained in both supraclavicular spaces will be higher than the axillary temperature, and if one apex is more affected than the other, the cutaneous temperature at that apical region will yield a higher temperature.

15. **Avery Evacuator.**—The underlying principle of Avery's evacuator is that of suction produced by a vacuum, which is maintained by some form of pump. This latter may be operated either by hand or electricity. Avery has found this apparatus of especial value in operating on adenoids and tonsils under general anesthesia. Here the severe and rapid hemorrhage tempts and often compels the surgeon to undue haste, with the result of too little tissue being removed, or too much, including perhaps a tonsillar pillar or part of the soft palate and uvula.

Boston Medical and Surgical Journal

January 6

16 *Tuberculin Treatment of Tuberculosis Dispensary Patients. J. B. Hawes and C. Floyd, Boston.
17 *Therapeutic Administration of Tuberculin in Surgical Tuberculosis. H. F. Hartwell and E. C. Streeter, Boston.
18 Obstructive Calculous Anuria. F. S. Watson, Boston.
19 Influence of Resection of the Kidney on the Function of the Organ; (A) when the kidney wound is closed by sutures; (B) when the kidney wound is drained; (a) by a Rubber Tube; (b) by Gauze. J. H. Cunningham, Boston.

16. **Tuberculin Treatment of Dispensary Patients.**—Out of 143 patients with various forms of tuberculosis treated with tuberculin by Hawes and Floyd during the past four years, 19 have died, 16 have shown no improvement, while 108 have been benefited to a greater or less degree. In no instance have the authors been able to see that tuberculin has done the slightest harm; reactions have been rare and invariably of a very mild type. In incipient pulmonary tuberculosis, especially in children, the authors say that tuberculin is a factor in increasing body resistance and in maintaining this resistance so as to prevent relapses. In more advanced pulmonary disease tuberculin will alleviate distressing symptoms, prolong life, and occasionally help to arrest the process. In localized or "surgical" tuberculosis tuberculin has a marked beneficial effect. Its administration should always be combined with hygienic outdoor treatment, and in the vast majority of instances should be subservient to this. Dispensary patients can be treated with tuberculin not only with perfect safety, but with benefit, providing that there is a close personal cooperation between the patient and the physician.

17. **Tuberculin in Surgical Tuberculosis.**—Hartwell and Streeter believe that a radical excision is the procedure of choice in the majority of cases on account of the great saving of time and the immediate removal of infected tissue which may be a possible menace. They suggest that tuberculin may be resorted to when the operation is contraindicated or refused, and suggest its employment as an adjuvant to operation. As such, they would use it to prevent recurrence after operation. In extensive involvement of cervical glands they would remove the most prominent gland masses, leaving the smaller nodes to be taken care of by tuberculin. It may also be employed to take away periglandular infiltration so that the hard and freely movable glands can be more easily shelled out through an open incision.

Lancet-Clinic, Cincinnati

January 1

20 *Tuberculous Toxemia in Surgery. A. C. Wiener, Chicago.
21 *Pfannenstiel's Incision: Report of Cases. H. O. Walker, Detroit, Mich.

22 *Reflex Neuroses Arising from Ocular and Nasal Abnormalities. J. A. Stucky, Lexington, Ky.
23 *What Women Should Know in Regard to Uterine Cancer. J. H. Carstens, Detroit.

20. Abstracted in THE JOURNAL, Oct. 30, 1909, p. 1505.

21. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1677.

22, 23. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1770.

Medical Fortnightly, St. Louis

December 25

24 The Problem of a Federal Department of Health. L. H. Montgomery, Chicago.
25 Need for Education on the Questions of Sex and Venereal Diseases and the Problems Involved. M. Duggan, San Antonio, Tex.
26 Pain. W. F. Waugh, Chicago.

Virginia Medical Semi-Monthly, Richmond

December 24

27 *Etiology, Symptomatology and Palliative Treatment of Hypertrophied Prostate. J. S. Niles, Carbondale, Pa.
28 Pellagra—Its Etiology, Pathology, Diagnosis and Treatment. C. W. G. Rohrer, Baltimore.
29 *Sterilization of Habitual Criminals. C. V. Carrington, Richmond, Va.
30 Clinical Aspect of Enlarged Tonsils—Résumé of 850 Operations. J. J. Richardson, Washington, D. C.
31 *Ocular Manifestations Associated with Intracranial Lesions Complicating Aural Diseases. S. M. Smith, Philadelphia.
32 Surgical Treatment of Hepatic Ascites. W. L. Peple, Richmond, Va.
33 Tax Reform in Virginia. G. Bryan, Richmond.

27. **Palliative Treatment of Hypertrophied Prostate.**—The object of Niles' paper is: 1. By discussion to become more positive concerning the etiologic factor, then to enlarge on the prophylactic attention, and thus prevent or lessen the enlargement of this gland. 2. By discriminating observation of the earlier symptoms, to inaugurate prophylactic measures earlier and thus retard urinary obstruction. 3. To gain knowledge of palliative treatments that we may obtain the greatest good from these methods.

The following summary is offered in conclusion: 1. The inflammatory theory of the origin of hypertrophy of the prostate is the one most feasible. 2. Prophylactic treatment in certain cases may be used successfully to prevent an acute engorgement of the prostate, and thus prohibit permanent retention of urine.

29. Abstracted in THE JOURNAL, Oct. 23, 1909, p. 1420.

31. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1588.

Northwestern Lancet, Minneapolis

December 15

34 Tumors of the Cecum. W. J. Mayo, Rochester, Minn.
35 Diagnosis of Smallpox. J. M. Armstrong, St. Paul.
36 The Tuberculosis Problem. J. W. Bell, Minneapolis.
37 Plea for the Early Diagnosis and Early Surgical Treatment of Cancer. E. H. Beckman, Rochester, Minn.

Colorado Medicine, Denver

December

38 Diagnostic Value of Distention of the Renal Pelvis with Fluid Through the Urethral Catheter. L. Freeman, Denver.
39 Surgical Treatment of Prostatic Hypertrophy. F. N. Cochems, Salida, Colo.

New York State Journal of Medicine, New York

December

40 *Infectiousness and Contagiosity of Acute Poliomyelitis. LeG. Kerr, New York.
41 Cancer of the Rectum. N. Jacobson, Syracuse.
42 Diseases of the Eye which the General Practitioner Should Know. F. H. Koyle, Hornell.
43 Injury to the Eyes from Exposure to Intense Light of Short Wave Length. W. T. Miller, Schenectady.
44 Case of Amebic Dysentery. H. W. Carey, Troy.
45 Study of the Peritoneum. T. L. Deaver, Syracuse.
46 Myelocytosis. A. L. Benedict, Buffalo.
47 Scarlet Fever in Country Practice. J. J. Montgomery, Luzerne.
48 Acute Iodobyroid Toxemia. F. S. Stannard, Troy.
49 Personal Experiences with Diseases of the Breast. J. W. Eddy, Oswego.

40. **Acute Poliomyelitis.**—From a study of 65 cases, Kerr is firmly convinced that in acute poliomyelitis, we are dealing with a hematogenic infection of a microbic agent of low virulence. That this infection is engrafted on a tissue susceptibility which is acquired through the agencies of local malnutrition, exhaustion and nerve impairment, and that this local condition is dependent on the two factors of functional activity and a general state of malnutrition, and that the most favoring factor of all is an individual susceptibility over which we have absolutely no control.

Journal Indiana State Medical Association, Fort Wayne

December

50 Foundations of Specialism. S. Coulter, LaFayette.
51 Analysis of Psychotherapy. B. F. Hutchins, Indianapolis.
52 The Psychic Element in the Causation of Disease. F. B. Wynn, Indianapolis.
53 Syphilis of the Nervous System. G. Van Sweringen, Fort Wayne.
54 Ten Cases of Brain Syphilis. C. F. Neu, Indianapolis.
55 Team Work, from the Standpoint of the Secretary. J. C. Wallace, Fort Wayne.

American Medicine, Burlington, Vt.

December

56 Résumé of the Progress of Surgery in Benign Conditions of the Stomach and Duodenum. W. A. Harroun, Kansas City, Mo.
57 *The Correct Solution of the Eye-Strain Problem—Where to Look for It. N. Roberts, Washington, D. C.
58 *When shall we Terminate Pregnancy? W. C. Schoenijahn, Brookiyn.
59 Frontal Sinusitis, Acute and Chronic, with a Plea for Early Diagnosis of Acute Cases. J. A. MacIsaac, New York.
60 Cervicobrachial Herpes Zoster. A Gordon, Philadelphia.
61 Diet in Tuberculosis. J. A. Cutter, New York.
62 Infection and Immunity: A Suggestion. W. C. Abbott, Chicago.

57. **Correct Solution of Eyestrain.**—Roberts claims that in many, perhaps most cases, a single correction is not enough for a person whose eyes have rebelled under the strain of excessive and unavoidable near work. The functions of accommodation and convergence are being inordinately overworked. In any given case the stress should be reduced to such an extent that it will cause no further harm, local or remote, to the organism. Present-day measures are not adequate to this end, and the profession, to increase its power for good, should bury its dissensions, call in all available aid, and cooperatively study the problem in all its aspects. A sufficient number of medical men, says Roberts, should qualify themselves and take up the work of bringing the eyes of the race to their highest efficiency.

58. **Termination of Pregnancy.**—No one, says Schoenijahn, should assume such a responsibility as the performance of abortion on his own judgment alone. The case should be submitted to one or several medical men, if possible, first to specialists in the particular conditions existing, then to the obstetrician. The outcome of consultation should be recorded, signed by the consultants, and preserved by whoever is to perform the operation. It might be well, also, inasmuch as in our enlightened age malpractice suits are not uncommon, to acquire the written consent, properly witnessed, of both husband and patient. In the event of untoward results such documents might prove invaluable.

Northwest Medicine, Seattle, Wash.

December

63 Prophylaxis of Pulmonary Tuberculosis. E. A. Pierce, Portland, Ore.
64 Early Diagnosis of Pulmonary Tuberculosis by the Roentgen Ray. H. R. Nelson, Victoria, B. C.
65 A Layman's View of the Tuberculosis Problem. A. L. Mills, Portland, Ore.
66 Vaccines in Therapeutic Agents. R. C. Matson, Portland, Ore.
67 Tuberculosis of the Kidney with Special Reference to Diagnosis and Treatment. G. S. Peterkin, Seattle, Wash.
68 *Resection of the Sciatic Nerve; Neuroplasty; End-Results; K. A. J. MacKenzie, Portland, Ore.

68. Abstracted in THE JOURNAL, July 31, 1909, p. 408.

Laryngoscope, St. Louis

December

69 On So-Called Multiple Osteomata of the Tracheal Mucous Membrane. H. S. Muckleston, Montreal.
70 The Nose and Nasopharynx in Infants and Young Children. J. M. Ingersoll, Cleveland.
71 *A Modified Mikulicz Operation, whereby the Entire Lower Turbinate is Saved in Intranasal Operations on the Antrum of Highmore. G. Sluder, St. Louis.
72 Lupus of the Nose. D. A. Vanderhoof, Rockford, Ill.
73 Septicemia Following Submucous Resection of the Nasal Septum: One Death; One Recovery. H. Hays, New York.
74 Staphylococcus Rhinitis as a Cause of Folliculitis Exulcerans Serpiginosa Nasi. T. J. Reardon, Boston.
75 *Pathology and Treatment of Recurrent Quinsy. R. C. Myles, New York.
76 Removal of Two Pharyngeal Tumors (Fibroma and Lymphoma) with Ligation of the External Carotid in One Case. F. P. Calhoun, Atlanta.
77 Voluntary Aspiration of a Foreign Body into the Bronchi; Removal by Bronchoscopy. C. Jackson, Pittsburg.
78 The Intranasal Frontal Sinus Operation: The Accessibility of the Sinus: The Prognosis of the Operation. T. C. Worthington, Baltimore.

71. **Maxillary Antrum Operation.**—Sluder's procedure consists in cutting the lower turbinate from the lateral wall, as

far back as its posterior fourth and fifth, by means of scissors. The detached part is then pushed well upward, while the operator removes the lateral wall of the lower meatus. The detached part of the lower turbinate is next pushed down into the lower meatus, while he removes as much of the lateral wall of the middle meatus as he wishes. In this manner it is possible to remove the entire inner wall of the antrum as far forward as the nasal process of the maxilla. There will still remain the ridge on the nasal process for the reattachment of the lower turbinate, which is now replaced in its original position, carefully apposing the cut surfaces at the anterior end. Often the parts may be held in position by means of a little cotton or gauze. If this is found to be insufficient, one or two stitches suffice to hold everything perfectly in place.

In 53 cases he has never seen the bone fail to unite, or undergo degeneration. No subsequent hypertrophy has been observed. Some of his cases are of four years' standing. The replaced turbinate in no wise interferes with the drainage or with the final good result. It does away absolutely with any subsequent drying. This is an especial advantage in cases both of medium and wide nostrils, where some drying is sure to follow any removal of the turbinate. It is especially advantageous also in cases in which the middle turbinate must be or has been removed to drain a frontal or ethmoidal empyema. In these cases it conserves the heat and moisture functions of the nose, which would be lost were both turbinates removed. In atrophic rhinitis it is especially indicated.

In noses whose caliber is a little too wide or a little too narrow, the angle of inclination of the turbinate may be altered in reattaching it, making it less acute for the former and more acute for the latter. This is readily done by tilting the bone upward by a pack of gauze or cotton put underneath its body after it has been sewed in place, or by pressing the body slightly outward by a pack between it and the septum. These packs must be continued throughout the healing, the bone afterward remaining in its new position.

75. **Recurrent Quinsy.**—The most satisfactory operative procedure, according to Myles, consists of dissecting the tonsils from the pillars with sharp, properly shaped knives, leaving enough of the capsule around the outlet of the tonsil cavity to prevent adhesion across the space between the pillars, then removing the tonsil as deeply as possible with the traction forceps and snare. After this, remove all of the median wall of the cavity that may be represented by the basic capsule of the tonsil. The fistulous tracts that lead from the main cavity can be incised with a curved bistoury as far as may be safe. In the cases in which the diverticulum extended down to the hyoid fossæ, a seton is used to cut through gradually and to convert the fistula into an open tract.

American Journal of Urology, New York

December

79 Bladder Hemorrhage Treatment. C. G. Cumston, Boston.
80 Removal of Wax Candle from Bladder by Means of Benzin. F. Weisz, Budapest.
81 Late Syphilitic Fever. H. J. Scherck, St. Louis.
82 Growths of Prostate and Bladder. R. H. Greene, New York.

Old Dominion Journal of Medicine and Surgery, Richmond

December

83 The State Medical Society. V. V. Anderson, Lynchburg, Va.
84 Angina Pectoris. F. Forchheimer, Cincinnati.
85 *Epidemic of Probable Paratyphoid Fever. A. W. Freeman, and H. T. Marshall, Charlottesville, Va.
86 Repair of the Torn Perineum. J. E. Cannaday, Charleston, W. Va.
87 A Means for Better Protection of our Communities from Disease, and by which our Aged Professional Brother can be Assisted. E. A. DeBordenave, Franklin, Va.

85. **Paratyphoid Fever.**—Freeman and Marshall believe that there prevailed at Weyer's Cave, Virginia, during the summer of 1909, an epidemic of a disease which was probably paratyphoid. They believe further that the epidemiologic studies failed to give any reasonable explanation as to the means of transmission of the disease, and that this condition was peculiar to the epidemic in question, as further studies in the same neighborhood disclosed the prevalence of a disease which was clinically and bacteriologically true typhoid.

Bulletin American Academy of Medicine, Easton, Pa.

December

88 *Congregational Practice. A. L. Benedict, Buffalo.
89 *Contract Practice. C. S. Sheldon, Madison, Wis.
90 *Contract Practice: Its Ethical Bearings and Relations to the Lodge and Industrial Insurance. H. T. Partree, Eatontown, N. J.
91 *Contract Practice in Rhode Island. G. S. Mathews, Providence.
92 *Physicians in Contract Practice with Mutual Benevolent Societies. A. Ravogli, Cincinnati.
93 *A Defence of Contract Practice. J. C. McManemin, Atlantic City, N. J.
94 *Why not Make Contract Practice Universal? W. Hutchinson, New York.
95 *Division of the Fee and Commissions to Physicians. A. A. Eshner, Philadelphia.
96 *Payment of Commissions by Specialist to General Practitioner. E. G. Edwards, La Junta, Colo.

88 to 94. Abstracted in THE JOURNAL, Aug. 7, 1909, p. 482.

95, 96. Abstracted in THE JOURNAL, July 17, 1909, pp. 224, 225.

Archives of Internal Medicine, Chicago

December

97 *Tuberculin Tests in Monkeys at the Philadelphia Zoological Gardens. C. Y. White and H. Fox, Philadelphia.
98 *Relation of Hypersusceptibility to Immunity. P. A. Lewis, New York.
99 *Protein Metabolism in Typhoid. P. A. Shaffer and W. Coleman, New York.
100 *Gonococcemia. E. E. Irons, Chicago.
101 *Tubercle Bacilli in the Blood. W. A. Sawyer, Berkeley, Calif.

97. **Tuberculin Test in Monkeys.**—The primary object of White and Fox's work was to protect the healthy monkeys by segregation of the infected ones. It was therefore diagnostic work, and the use of tuberculin for therapeutic purposes was not tried. They have been able to detect tuberculosis in 37 per cent. of 128 monkeys tested. No monkey which has passed the test—*i. e.*, given a negative reaction since February, 1906—has shown as yet any evidence of tuberculosis, although some have died from other causes and others have been killed on suspicion. Ten of the 79 monkeys which were passed were subsequently found to be tuberculous, either in the exhibition cages or after having been returned to the laboratory for any reason. The authors claim that by careful consideration of the temperature, by rigid adherence to hygienic measures in quarantine, and by observation of the individual peculiarities of the animals, the tuberculin test will prove an efficient means of separating infected monkeys and preserving exhibition collections.

98. **Relation of Hypersusceptibility to Immunity.**—Lewis regards the evidence that there exists a condition of specific hypersusceptibility to the true toxins, such as diphtheria and tetanus toxin, as an underlying factor in antitoxic immunity, as not at all convincing. He says that processes, such as bacteriolysis, which seem to be of fundamental importance in the state of immunity against certain bacteria, may, if exaggerated, give rise to an apparent hypersusceptibility which is really an imperfect immunity. There is no good evidence for the occurrence of a specific hypersusceptibility to endotoxins. The questions involved are rendered still more complicated by the fact that the phenomenon of anaphylaxis may be developed with bacterial proteids which are probably not in themselves factors in the production of diseases. The results of experiments which have been supposed to show that specific hypersusceptibility can be induced against the hypothetical "pure tuberculin" are so complicated by the presence of admixed substances that no final conclusion can be drawn from them. These admixed substances, presumably thermostabile bouillon constituents, may, under suitable conditions, give rise to a typical reaction of anaphylaxis.

99. **Protein Metabolism in Typhoid.**—The results of a very detailed and careful series of experiments made to determine the protein metabolism in typhoid are briefly summarized as follows:

1. By the use of diets of high caloric value and especially rich in carbohydrate it is possible to retard and, if the carbohydrate supply be sufficient, to prevent the febrile loss of body-protein-nitrogen in subjects of typhoid fever.

2. By such dietetic treatment the "toxic" destruction of body protein as well as the destruction due to simple pyrexia in this disease may therefore be either prevented or compensated for.

3. The behavior of creatin and of total sulphur in these experiments appear to show that the febrile destruction of body protein, including the action of pyrexia and of toxins, is actually retarded or

even wholly prevented by the intake of sufficient carbohydrate. The prevention of the febrile loss of body protein is therefore probably not to be explained by a mere compensatory retention of food protein.

4. The results support the belief that in fever there is a greater need for carbohydrate; that if the food does not contain sufficient carbohydrate the body protein is drawn on perhaps to supply energy in an available form; but that if sufficient carbohydrate be available from the food, the body protein is protected from the febrile destruction.

5. If, as seems probable from these results, the "toxic" destruction of body protein may be prevented by large carbohydrate intake, the mechanism of this "toxic" destruction cannot be a direct (poisonous) injury to body cells and proteins.

6. To maintain nitrogen equilibrium in typhoid the food must contain from 10 to 15 gm. nitrogen in addition to much carbohydrate. The experiments show no advantage from a further increase of food-protein.

100. **Gonococcemia.**—Irons reports 6 cases in which the gonococcus was isolated from the blood during life.

CASE 1.—The clinical picture is that of an exceedingly chronic type of gonococcus infection, from the initial urethritis ten years previously, with relapses or, possibly reinfections later, hydrocele and arthritis of recurring type, attacks of irregular fever with occasional chills, and finally a more severe attack of continued fever, arthritis, leucocytosis, and demonstrated gonococcemia. Doubtless the gonococcus could have been demonstrated in the blood much earlier had proper media been employed. During the early days of observation the case presented several points of difficulty in diagnosis in spite of the evident rôle which the gonococcus had played in the previous history. The continued fever, with relatively slight remissions, together with the abdominal maculopapules, some of which at least could not be distinguished from rose-spots, suggested the possibility of typhoid complicating some other infection. Signs of dry pleurisy were noted at the onset. Acute articular rheumatism, tuberculosis, and, later, ulcerative endocarditis of possibly pneumococcus or streptococcus origin were considered. During the period of observation in the hospital the patient presented no definite evidence of endocardial lesion. The subsequent history of cardiac difficulty and irregular fever almost two years later suggest strongly the presence of an ulcerative gonococcus endocarditis which may have had its origin at the time of hospital observation, or possibly months before. The value of vaccines in the case is problematical. The gradual fall of temperature and improvement in the joints which followed the use of vaccines without other medication may have occurred coincidently, and not as a result of the therapy.

CASE 2.—The history of illness extending over a period of eight months at least, characterized by gradually increasing palpitation, dyspnea, irregular fever and chills, the physical signs of a progressive lesion of the aortic valve, enlarged spleen, and the absence of other foci of suppuration suffice for the diagnosis of ulcerative endocarditis involving the aortic valve. The history of a preceding gonorrhea and the absence of other illness, such as tonsillitis, or pneumonia, are suggestive of the nature of the infection. The isolation of the gonococcus in pure culture from the circulating blood demonstrates the true character of the infection. The use of autogenous vaccines in this case was not followed by any observable benefit. The leucocyte counts are lower than those usually found in gonococcus infections.

CASE 3.—One week after the onset of gonorrhea a young man suffers a severe chill, followed by pain in several joints. The joint symptoms subside, but the chilly sensations and fever recur irregularly, with gradually increasing weakness, dyspnea, and loss of weight. Glycosuria without polyphagia or marked polyuria is found, and the patient is brought to the consultant. The history, weakness, fever, chills and anemia suggest a septic process, and the gonococcus is isolated from the blood. The gradually changing endocardial murmur, together with other signs of cardiac involvement, leave but little doubt that acute ulcerative endocarditis is also present.

CASE 4.—A woman, aged 37, an alcoholic, who for some time has suffered from a genital gonococcus infection, is taken suddenly ill with multiple arthritis, fever and symptoms of severe infection, clinically not unlike acute articular rheumatism. Aside from a faint systolic murmur (possibly hemic) there is no definite evidence of endocarditis or pericarditis. The fever from the fifth day ranges between 101 F. and 103 F., later gradually rising to 106 F. and death.

CASE 5.—A man, aged 39, alcoholic, the subject of chronic gonococcus urethritis, suddenly suffers from multiple arthritis, fever, and symptoms of severe infection. Careful and repeated examination of the heart show no definite evidence of endocarditis. Over the abdomen and lower chest are a number of small slightly raised reddish maculopapules which partially fade on pressure. There is a leucocytosis of 21,000. The gonococcus is isolated from the blood in numbers of 2 and 3 colonies per cubic centimeter of blood. The fever curve is sustained, with only slight remissions. The pulse in the third week of the illness is rapid. Aside from the laboratory findings and the arthritis of the knee, the clinical course, appearance of the patient, rash and temperature curve are somewhat suggestive of typhoid.

CASE 6.—During an exacerbation in the course of gonococcus arthritis in a young man the gonococcus is isolated from the blood and from the joint fluid in pure culture. There is no clinical evidence during the entire course of the illness of any endocardial lesion.

101. **Tubercle Bacilli in the Blood.**—In 167 preparations made by Sawyer from the blood of 39 bleedings from 21 tuberculous cattle no tubercle bacilli were found in 110.9 hours' search; 133 of the specimens, made from gravity sediments of blood-citrate mixture, were searched 88.9 hours; the remaining 34 slides, made from laked and centrifugalized blood, were searched 22 hours. In one instance tubercle bacilli were recovered by both methods of examination from blood drawn twenty-five minutes after inoculation of the arterial blood-stream. Guinea-pig inoculations with the blood sediments of 20 tuberculous cattle failed to produce tuberculosis.

In experiments in which tubercle bacilli had been introduced into the blood, either in the circulation or in test-tubes, the examination of laked and centrifugalized blood proved much more effective in the detection of the organisms than did the search of gravity sediments from unlaked mixtures of blood and citrate solution. Sawyer found that the upper portions of gravity sediment from mixtures of blood and citrate solution are much more apt to contain bacilli than the lower parts, and that tubercle bacilli which have been experimentally thrown into the blood stream are rapidly removed from the circulation. Experiment suggests that the capillaries of the lungs are more efficient in arresting bacilli than the peripheral capillaries. Chronic tuberculosis may produce a marked partial immunity against fresh inoculation with tubercle bacilli.

Dominion Medical Monthly, Toronto

December

102 Hemorrhagic Pneumococcus Septicemia. H. B. Anderson, Toronto.
103 Alcoholism a Symptom of Constitutional Psychoneurosis. S. Soukhanoff, St. Petersburg, Russia.
104 Epithelioma of the Skin, Especially its Treatment. G. Chambers, Toronto.

Maryland Medical Journal, Baltimore

December

105 Surgery of the Thyroid (continued). R. Winslow, Baltimore.
106 Unusual Cases of Disease of the Salivary Apparatus. J. R. Winslow, Baltimore.
107 Sanitary Supervision an Aid to Commercialism. H. B. Wood, Philadelphia.
108 Van Helmont, Des Cartes, Sylvius, Borelli. H. M. Cohen, Baltimore.
109 *Why Does Ophthalmia Neonatorum Continue to Cause so much Blindness? J. J. Carroll, Baltimore.
110 Surgery of the Kidney (continued). A. McGlannon, Baltimore.

109. **Ophthalmia Neonatorum.**—Carroll does not agree with those writers who claim that blindness from ophthalmia neonatorum has been very much reduced since the Credé method of prophylaxis. He says that while a slight decrease has been observed in some quarters, an actual increase has been noted in others. On July 31, 1901, Professor Cohn of Breslau stated before the Tenth Congress of Teachers of the Blind that in twenty-five years there has been a reduction of only 8 per cent. in the ophthalmia blind in Germany. It should be noted here that twenty-one of these twenty-five years had the advantage of the Credé prophylactic. In the United States the much-desired decrease has not yet materialized. For four years, ending in 1905, the annual proportion of children blind from ophthalmia entering the New York State School for the Blind was 25 per cent.; in 1906 the new class had 26 per cent.; in 1907, 30.7 per cent. In the Pennsylvania Institute for the Blind the percentage of ophthalmia

blind admitted in 1900 was 44; in 1901, 35; in 1902, 23; in 1903, 50; in 1904, 25; in 1905, 50; in 1906, 31; in 1907, 33.3, the average for the eight years being 36.4. Comparing the average number during the first period of four years with the average of the second period of four years, we have a decrease of only 3.2 per cent.

In regard to the Maryland School for the Blind, statistics seem to indicate that blindness from ophthalmia neonatorum is decidedly on the increase. In 1890, of 94 pupils then in the school, 17.9 per cent. were blind from ophthalmia. During Carroll's connection with this institution during the past four years, he has examined 128 pupils and found 25.8 per cent. blind from this same disease. The histories of the ophthalmia pupils of the Maryland School for the Blind go to show that 29 per cent. of them are from the private practice of general practitioners, while Carroll has been unable to trace a single case to a regular lying-in-hospital. In view of this fact it must be said that there are still some physicians who do not give as much attention to the proper treatment of ophthalmia neonatorum as they should. The best means of prevention is the use of silver nitrate. The essential part of the Credé method is the instillation of one drop of silver nitrate solution into the eyes of the new-born infant, the original strength of the solution being 2 per cent., the accepted strength to-day being 1 per cent. Whether this is done as soon as the head is born, as advocated by some obstetricians, or immediately after the first bath, as advocated by others, is immaterial. Care should be taken, of course, not to let the water of the baby's first bath come in contact with the eyes, and it is well to use a small glass rod, as suggested by Credé, in the instillation of the drops. It goes without saying that the eyelids should be carefully washed with clean water and cotton before the drops are used.

California State Journal of Medicine, San Francisco

December

111 Acute and Postoperative Dilatation of Stomach. W. S. Thorne, San Francisco.
112 Points in the Treatment of Infants. L. Porter, San Francisco.
113 Treatment of Flat and Pronated Feet. G. A. Harker, Oakland.
114 Development of Medical Education in California. H. Gibbons, San Francisco.
115 Practical Points in the Diagnosis of Every-Day Skin Diseases. E. D. Chipman, San Francisco.
116 Three Non-Tuberculous Joint Lesions. J. T. Watkins, San Francisco.
117 Roentgenographic Findings in Fractures about the Elbow Joint. A. Soiland, Los Angeles.

Cleveland Medical Journal

December

118 Some Activities of the Public Health and Marine-Hospital Service in Relation to Scientific Investigations. J. W. Kerr, U. S. P. H. and M.-H. S.
119 Tests of Insanity in the Civil Court. B. A. Gage, Cleveland.
120 Idem. W. B. Laffer, Cleveland.
121 *Inflammation and Suppuration of the Omentum. C. A. Hamann, Cleveland.
122 Treatment of Placenta Prævia. A. H. Bill, Cleveland.
123 Technic of Cesarean Section. G. W. Crile, Cleveland.

121. Inflammation of the Omentum.—Inflammation and tumor formation following ligation of portions of the omentum are not mentioned as possibilities in the vast majority of works dealing with hernia, or at any rate Hamann says they do not seem to be as well known as they should be. His attention was attracted to the subject by the case of a middle-aged man, operated on for the radical cure of an inguinal hernia; a portion of the omentum had been tied off with catgut. The wound healed in a week or ten days by first intention, and without complications. The patient then began to complain of abdominal pain and soon a tender swelling could be felt in the hypogastrium. This reached the size of an orange and the temperature remained elevated for a week or more, 102.6 being the highest. The symptoms and physical signs then gradually subsided and the patient made a complete recovery. The diagnosis is easily made, says Hamann, if one bears in mind the possibility of such inflammatory swellings occurring after ligation of the omentum and can then elicit the physical signs and the symptoms outlined above. In some cases they have been mistaken for ovarian cysts, enlarged spleen and malignant growths, and the diagnostic difficulty will be increased if they occur a long time after operation. The treatment need not at first be operative; rest in bed of course is essential; locally, heat and moisture in the form of wet packs may be applied. If the progressive increase in the size of the swelling, fever, parietal adhesions and leucocytosis indicate the presence of pus, an incision is to be made and the abscess cavity evacuated and drained. The ultimate results in the majority of cases are favorable. An effort should be made to prevent the condition by absolute asepsis in the operation and of the ligature material, by ligating only non-inflamed omentum and by including only small portions of the omentum in each ligature.

Southern California Practitioner, Los Angeles

December

124 Present Status of Medicine and Surgery. A. S. Lobingier, Los Angeles.
125 The Barlow Sanatorium, Los Angeles, Cal. R. L. Cunningham, Los Angeles.
126 *Two Apparently New Physical Signs, whereby Normal Organs may be Outlined, and Diseased Conditions Diagnosticated, Particularly within the Chest, by Palpation. F. M. Pottenger, Monrovia.
127 Diagnosis of Gastric and Duodenal Ulcer. D. J. Frick, Los Angeles.
128 Etiology of the Venereal Plagues and some New Methods of Prevention. W. L. Holt, Banning, Cal.

126. Published in the *Lancet Clinic*, Dec. 11, 1909.

Philippine Journal of Science

August

129 Medical Survey of the Town of Taytay: Introduction. R. P. Strong, Manila.
130 Geology and Water Supply of Taytay. G. I. Adams, Manila.
131 Bacteriologic Analyses of the Water Supply of Taytay. M. T. Clegg, Manila.
132 Chemical Analyses of Taytay Waters. G. F. Richmond and V. Q. Gana, Manila.
133 Principal Foods Utilized by the Natives in Taytay. E. D. Merrill, Manila.
134 Food of the People of Taytay from a Physiologic Standpoint. H. Aron, Manila.
135 Mosquitoes and other Insects of Taytay. C. S. Banks, Manila.
136 Vital Statistics of Taytay. P. Clements, Manila.
137 General Sanitary Conditions of Taytay. P. Clements, Manila.
138 Animal Parasites of Intestine in Taytay. P. E. Garrison, R. Leynes and R. Llamas, Manila.
139 Table of Physical Examinations of Inhabitants of Taytay. F. B. Bowman, L. Lopez, V. E. Manapat and V. Rivera, Manila.
140 Examinations of the Blood with Special Reference to Malaria in Natives of Taytay. L. Guerrero and V. Sevilla, Manila.
141 Filariasis, Malaria, Tuberculosis, Typhoid, Goiter, Beriberi, and Venereal and Skin Diseases in Taytay. H. J. Nichols, U. S. Army.
142 Disposal of Human Excreta in Taytay. P. E. Garrison, U. S. Navy.
143 Summary and Conclusions of Medical Survey of Taytay. R. P. Strong, Manila.

Bullet.. Medical and Chirurgical Faculty of Maryland, Baltimore

December

144 Relation of the Medical Profession to the Public. G. M. Linthicum, Baltimore.

Journal Oklahoma State Medical Association, Muskogee

December

145 Gonorrhea as seen by the General Practitioner. F. E. Waterfield, Holdenville.
146 The Nasal Septum as a Factor in Nasal Catarrh. S. H. Barnes, Enid.
147 Enterostomy. A. A. West, Guthrie.
148 Acute Gastric Catarrh. J. W. Ousley, Kansas City, Mo.

Journal of Biological Chemistry, Baltimore

December

149 The Iodin Complex in Sponges (3, 5-Diiodtyrosine). H. L. Wheeler and L. B. Mendel, New Haven, Conn.
150 The Preparation and Properties of Iodomucoids. G. M. Meyer, New York.
151 Lactic Acid in the Autolyzed Dog's Liver. T. Saiki, Albany, N. Y.
152 Liquid Extraction with the Aid of Soxhlet's Apparatus. T. Saiki, Albany.
153 The Chemistry of Cancer. T. Saiki, Albany.
154 The Estimation of Purin Nitrogen in Urine. S. R. Benedict and T. Saiki, Albany.
155 Neutrality Equilibrium in Blood and Protoplasm. L. J. Henderson, Boston.
156 *The Influence of Lactic Acid Ferments on Intestinal Putrefaction in a Healthy Individual. H. Baldwin, New York.
157 *The Catalytic Action of Aminoacids, Peptones and Proteins in Effecting Certain Syntheses. H. D. Dakin, New York.
158 Uroroscin Reaction. H. D. Dakin, New York.
159 *The Action of Sodium Benzoate on Multiplication and Gas Production of Various Bacteria. C. A. Herter, New York.

156. Lactic Acid Ferments and Putrefaction.—Baldwin experimented with a healthy man who received in addition to a mixed diet, various preparations containing lactic acid

bacilli, especially the *Bacillus bulgaricus*. These bacilli were cultivated from the feces in two instances, showing that they survived the action of the intestinal contents and were presumably active throughout the intestinal tract. The ethereal sulphates were estimated and were found to be lower in proportion to the nitrogen in the urine when an ordinary mixed diet was given with no additional fermented milk or malt. The amount of indican, indolacetic acid, and phenols in the urine were so small that definite conclusions could not well be drawn. When biscuits and milk were the only foods taken the ethereal sulphates were very low and this was also the case when zoolak and biscuits were the only food taken for lunch, but when a liter of zoolak was taken in addition to three meals daily of a mixed diet, the subject's condition became less satisfactory than when no fermented milk was added to the diet. The results show also that the addition of a liter of plain milk with biscuits to the usual mixed diet increased the intestinal putrefaction. The observations have no bearing on the use of fermented milks alone, or with a diet free from meat. In certain cases the fermented milks may be more appetizing and better borne than plain milk, but when added to a general mixed diet including meat they exerted no specially favorable influence on intestinal putrefaction.

157. **Catalytic Action of Aminoacids.**—As it is probable that the syntheses occurring in the animal cell metabolism are brought about by the action of catalytic agents, Dakin undertook to determine whether similar changes could be experimentally demonstrated under the influence of catalyzing agents, especially the aminoacids and proteins. He has been able to demonstrate the catalytic action of glycocoll (aminoacetic acid), leucin (amino-caproic acid), peptone, albumose, etc., in affecting the synthesis of furfuracrylic acid, cinnamic acid, and similar products. While a number of the products formed are ordinarily formed in the living organism, analogous products are formed and it seems probable that aminoacids may play a part in such biochemical syntheses.

159. **Action of Sodium Benzoate on Bacteria.**—Herter reaches the general result that sodium benzoate in fluid media, in concentration of 0.1 per cent., cannot be regarded as an effective antifermentative agent, in the sense of checking the multiplication of bacteria. On the other hand, sodium benzoate in this concentration is not without some influence on the course of fermentation, for, in addition to some restriction in multiplication, there may be a distinct effect in diminishing the production of gas. In experiments on the feces sodium benzoate and benzoic acid diminished the production of gas and inhibited to some extent the growth of organisms of the *B. coli* type but the coccal form of bacteria were relatively increased.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

December 25

1 *Indications for Immediately Opening the Abdomen in Acute Cases. W. G. Spencer.
2 *Uses of Catgut in Surgery. C. Y. Pearson.
3 Removal of Foreign Bodies from the Esophagus by Means of Bruning's Direct Esophagoscope. J. G. French.
4 Dislocation of a Cervical Vertebra; Operation; Recovery. Dr. Hill.
5 Diver's Paralysis. G. Blick.

1. **Indications for Opening the Abdomen.**—The various conditions for which, in Spencer's opinion, an immediate operation is required in abdominal cases are: An irreducible femoral or umbilical hernia, the inguinal hernia which comes down suddenly in a strong man and causes marked pain; appendicitis; gastroduodenal ulceration and perforation; gangrene of the gall bladder; acute pancreatic abscess; a twisted ovarian cyst; suppuration supervening on an ovarian dermoid, salpingitis, or hematocele; some cases of extrauterine fetation; acute infective pelvic peritonitis; acute gonorrheal pelvic peritonitis; intestinal obstruction; abdominal injuries; cases for Cesarean section; renal obstruction and suppression of urine.

2. **Iodin-Formalin Catgut.**—For about 2 years Pearson has been using the iodin-formalin catgut wherever delayed absorption was desirable, with most satisfactory results. The method of preparation is as follows: The gut is prepared with an alcoholic solution of iodin. At the end of 8 days it is taken from the iodin solution with sterile forceps, placed in a sterile glass jar, and washed with either a weak solution of carbolic acid or with running sterile water to remove the alcohol and iodin from the outer layers, so as to permit more freedom for the action of the formalin. Next it is placed in a 3 per cent. formalin solution for from 24 to 48 hours according to the thickness of the gut. It is washed in running water for a few hours to remove the formalin, and then it is placed in 50 per cent. alcohol containing 0.5 per cent. iodin and 5 per cent. glycerin, this latter rendering the gut more pliable. In this solution it may be kept indefinitely, being taken from it only shortly before being required for use to allow the alcohol to evaporate. Catgut prepared in this way is said to possess the combined advantages of iodin and formalin gut without any of the disadvantages of formalin gut prepared in the ordinary manner.

Lancet, London

December 25

6 *Effect and Use of Radium. D. Turner.
7 Vaccine Treatment of Pyorrhea Alveolaris (Alveolar Osteitis). K. Goadby.

6. **Effects and Use of Radium.**—Among the conditions in which Turner has found radium useful are rodent ulcer, angiomas, keloids, cicatrices and fibrous contractions, warty growths, simple ulcers, malignant growths, and pruritus. Illustrative cases are reported.

Medical Press and Circular, London

December 15

8 Prognosis and Etiology of Mitral Incompetence. Sir J. F. H. Broadbent.
9 The Peritoneum and Peritonitis (concluded). E. R. Carling.
10 Early Diagnosis of Suppurations of the Mastoid. A. Jansen.
11 Scarlet Fever from Cows. G. de G. Griffith.

December 22

12 Varicocele. D'A. Power.
13 Trachoma. A. H. Benson.
14 Abdominal Hysterectomy Sixty-three Hours after Labor for a Necrosed and Suppurating Sub-Peritoneal Fibroid. P. D. Turner.
15 Cystic Tumor of the Right Broad Ligament Springing from the Uterus, and Apparently Developed from Gärtner's Duct. A. H. N. Lewers.
16 Recent Advances in Bacteriology. C. C. Douglas.
17 Problems Relating to the Evolution of the Brain. G. E. Smith.

Clinical Journal, London

December 22

18 Fistula-in-Ano and Foreign Bodies in the Rectum. H. Cripps.
19 Aspects of Thyroid Insufficiency. L. Williams.
20 *Perforation of the Small Intestine. H. Lett.

20. **Perforation of Small Intestine.**—The first patient was suddenly seized with severe pain in the upper half of the abdomen; this was soon followed by vomiting. She vomited repeatedly during the night and the next day, and the abdominal pain and tenderness became very severe. She had suffered from dyspepsia for years, but had never had hematemesis, otherwise her health had been very good. When the abdomen was opened the jejunum was carefully examined, and eighteen inches beyond the duodeno-jejunal junction a small perforation was found, situated on the free border of the intestine, away from the mesentery. The wall of the intestine was thickened and infiltrated around the perforation, and its characters suggested that a chronic ulcer had given way. A hasty examination of the rest of the small intestine revealed nothing abnormal. Lett believes that the case may be correctly considered one of a perforated peptic jejunal ulcer.

The second patient also had a sudden attack of severe abdominal pain; this was accompanied or shortly followed by a shivering fit, the temperature rose to 104 F., and the patient vomited several times. He stated that he had not felt well for five weeks. He had been at work, though he felt drowsy and good-for-nothing. The bowels had been opened daily, but there had been no diarrhea. He presented an emaciated appearance, and looked very ill. The tongue was dry and red, pulse 110, respirations 40, temperature 101 F. The abdomen was uniformly rigid and painful and hardly moved on respira-

tion. Laparotomy was immediately performed. A small perforation was found in the ileum two inches from the ileocecal valve; there was no induration of the intestine around the perforation, and the wall appeared to be rather thinner than usual. The case was considered to be one of ambulatory typhoid with perforation. The history of malaise and drowsiness during the preceding five weeks and the emaciated condition of the patient seemed to confirm the diagnosis; and lastly, the symptoms followed the perforation, namely, the rigor with a temperature of 104 F., the vomiting and the development of typical signs of peritonitis were quite consistent with the perforation of a typhoid ulcer.

Practitioner, London

December

21 Pasteur, Science and Medicine. F. M. Sandwith.
22 *Relief of Headaches by Correction of Errors of Refraction. D. M. Mackay.
23 Recent Work on the Diseases of Children. J. H. Thursfield.
24 *Delay or Retardation of the Pulse as a Sign of Aneurism. L. Findlay.
25 Disorders of Gastric Secretion. F. C. Moore.
26 Comfortable Words about Poisoning. S. S. Sprigge.
27 Ancient Superstitions that Still Flourish. F. H. Pickin.
28 Labor Complicated by Uterine Prolapse of Second Degree with Supravaginal Elongation of the Cervix. R. R. B. Truman.
29 Strangulated Hernia—Herniotomy—Supplementary Spleen Found in Great Omentum at Operation. F. L. Wood.
30 Physical Explanation of Certain Auscultatory Signs Heard in Connection with Morbid Conditions of the Lungs or Pleura. H. A. Haig.

22. **Relief of Headaches.**—The attitude of ophthalmologists toward the relief of headaches is stated by Mackay as being that every patient with headache in whom the headache is not removed by other means should be suspected of refractive error, and that this suspicion should only be dismissed if refractive error is proved to be absent. Doubtless, in many cases, the spectacles fail to relieve the headache; but this only indicates that other conditions may coexist with the error of refraction, and be of more importance in the causation of the trouble. A sufficient number of successful cases have been observed to encourage one in the expectation of relieving the headaches in this way.

24. **Delay or Retardation of Pulse.**—In view of the diversity of opinion regarding even the mere existence of the phenomenon, but more especially in the light of its possible value as a physical sign, and also as he had the opportunity of observing two cases which presented some delay of the right radial pulse, it occurred to Findlay that by approaching the subject from the purely physical aspect, and carrying out experiments with artificial aneurisms and rubber tubing, much might be learned regarding the phenomenon. He employed an artificial circulation constructed from rubber tubing, a thick and wide portion representing the aorta, and a similar portion acting as the main venous trunks. He found that in cases of thoracic aneurism delay or increased retardation of one of the radial pulses does occur. The same delay may or may not be present in the cases of corresponding carotid pulse. If the idea, based on experimental physics, be correct, that delay of the pulse wave is only produced as the result of the wave passing through the aneurism, then, says Findlay, the phenomenon of delay should be a most important diagnostic aid in the localization of the aneurism. Digital examination is not a reliable test of the presence or absence of delay. The finger may miss the delay when present, and may diagnose it when absent. A more delicate instrument, such as the clinical polygraph, is necessary.

Dublin Journal of Medical Science

December

31 Relations of Physic to Physics and their Bearing on Therapeutics. W. G. Smith.
32 Diseases of Animals Communicable to Man. A. E. Mettam.
33 Teaching of Practical Midwifery in the Past and at the Present Time. H. Jellett.

Journal of Obstetrics and Gynecology of the British Empire, London

December

34 The Antiautolytic Action of Blood Serum and its Relation to Hyaline Changes in Uterine Fibroids. L. Murray.
35 *Unilateral Hematometra of Long Standing Forming a Large Abdominal Cyst. G. B. Smith.
36 Inguinal Hernia of the Uterus. H. B. Robinson.
37 Accidental Hemorrhage and Chronic Uremia in which the *Bacillus Proteus* was Found. A. Stockes and E. E. Glynn.

35. **Unilateral Hematometra.**—Ten months after a miscarriage the patient, aged 41, was admitted to the hospital on account of an abdominal tumor with acute pain. She had been ill for rather more than a week before admission, and the tumor in the abdomen had been discovered for the first time during this illness. The diagnosis made before admission was one of ovarian tumor with twisted pedicle. Smith hesitated about confirming this diagnosis owing to the shape and fixity of the tumor. It bulged down into the pelvis like a broad ligament cyst or an encysted peritoneal collection of fluid. At the operation he found filling the lower half of the abdomen a large cyst with a wall discolored by blood, and similar to that seen in the case of an ovarian cyst with twisted pedicle and extravasation of blood into its interior. The cyst had no pedicle, and was seated largely in the cellular tissue, being covered by peritoneum on its upper and anterior surfaces only. In its growth it had expanded the mesosigmoid, so that the sigmoid flexure was applied tightly to the front of the cyst. A trochar and cannula were inserted and the contents, which consisted of dark altered blood, were withdrawn. The wall of the cyst was thick and did not collapse. The opening into it was enlarged and the interior washed out with normal saline solution. It was then found to be a unilocular cyst with thick walls. There seemed to be no doubt that the cyst had resulted from the dilatation of the left horn of a bicornute uterus. The most interesting feature is the age of the patient at which it was first detected. She was 41 when admitted to the hospital, and the swelling had been discovered only within the week previous to admission. She had, however, noticed herself getting stouter since she had a miscarriage. Another interesting feature is the subsequent return of the parts to a condition but little distinguishable from the normal. The sac contracted with great rapidity on to the uterus, and two months later nothing was to be felt of the inflamed thick-walled cyst outside the uterus, the horn having again returned to something like its original condition. All that was felt was a broad, somewhat uneven uterus, such as one might expect to find in a bicornute uterus.

Annales de Médecine et Chirurgie Infantiles, Paris

December 15, XIII, No. 24, pp. 829-860

38 Methods of Examination of Breast Milk. (Le lait de femme.) J. W. Troltsky.

Archives Générales de Médecine, Paris

November, LXXXIX, No. 11, pp. 805-868

39 Primary Cancer of the Lung. (Cas de cancer primitif du poumon; forme métatypique d'origine alvéolaire; avec pleurésie hémorrhagique et métastase encéphalique.) J. Rieux and P. Savy.

Lyon Chirurgical, Lyons

December, II, No. 7, pp. 765-856

40 *Orthopedic Corsets and Supports. (Le corset orthopédique. Autrefois et aujourd'hui.) P. Vignard and G. Monod.
41 *Symptoms of Adherent Pericardium, and Its Operative Treatment. (Quelques points de sémélologie de la médiastino-péricardite, d'après les observations de cardiolyse.) G. Mouriquand.
42 Congenital Pseudoarthroses of the Leg and their Treatment. A. S. Papadopoulos.

40. **Orthopedic Corsets, Old and New.**—Vignard commends perforated celluloid as the best material, and describes the improved technic for making the corset, giving some illustrations of the deplorable results that have followed the wearing of ill-made supports in the past. He adds that if France is fifty years behind the rest of the world in orthopedics, it is because practitioners and surgeons give up the making of orthopedic corsets to others instead of making the cast with their own hands and superintending the fitting of the corset. An important point to bear in mind is that the body does not grow in straight lines, but according to definite curves, and consequently it is worse than useless to make provision for lengthening the corset in a straight line for prolonged use.

41. **Chronic Adhesive Pericarditis.**—Mouriquand comments on the saying that there are two forms of adhesive pericarditis, that which we diagnose but of which no traces can be found at autopsy, and that which we do not recognize during life, but which is a striking post-mortem finding. Hitherto it did not make much difference whether the affection was duly

diagnosed as treatment was merely medical and symptomatic. But now that surgical intervention has been proposed and cardiolysis performed in 18 cases, early differentiation is of great importance. Mouriquand states that analysis of these 18 cases shows that the best results were obtained in the tuberculous variety with or without left pleurisy and mediastinitis. Preceding serous pleurisy was mentioned in 8 of the 15 cases reported in full. Rheumatism was known in the history of only 2 of the patients. As a rule, rheumatism attacks the entire heart, not the pericardium alone, and the rheumatic cases are not favorable for operative intervention. Only two of the patients failed to benefit by the cardiolysis, that is, the resection of ribs and breaking up of adhesions. (The technic was described in THE JOURNAL, July 20 and Sept. 21, 1907, pages 285 and 1061.) Setting the heart free from its fusion with pleura or chest wall relieves it of a large amount of excessive and unnecessary labor and conditions improve at once. Bulging of the precordium was noticed only in one of the cases; it is exceptional in adults. Pain in the precordium is an important and frequent sign, also the tugging retraction of the chest wall accompanying systole, and the diastolic rebound or shock. Both of the latter seem to persist after the operation. Increased area of dulness over the heart was noted in 7 out of 15 cases and jaundice in 2; ascites was a prominent symptom in 10 cases and a hard and enlarged liver in 11. The spleen was also enlarged in a few cases. In the child these latter findings exclude tuberculous peritonitis while the absence of drinking habits in the adult speaks against the assumption of cirrhosis of the liver which the syndrome otherwise suggests. Dropsical swelling of the legs was frequently observed, and occasionally cyanosis for which no cause in the lungs could be discovered. Diastolic collapse of the jugular vein was another frequent symptom but the *pulsus paradoxus* was only exceptionally encountered, although sought for in every instance. There is generally also habitual oliguria and considerable albuminuria, while traces of the primary pleurisy can usually be discovered. The age of the patients ranged from 8 to 50 but the best results of operative intervention were obtained in 10 patients between 15 and 30.

Presse Médicale, Paris

December 5, XVII, No. 10, pp. 897-905

43 Otogenous Meningitis. (Prévision de la méningite otogène.) M. Lermoyez.
44 Drug Addictions. (La toxicomanie.) L. Viel.

Semaine Médicale, Paris

December 8, XXIX, No. 49, pp. 577-588

45 *Circumscribed Serous Meningitis of the Brain Cortex. (Méningite séreuse circonscrite de la corticalité cérébrale.) F. Raymond and H. Claude.

December 15, No. 50, pp. 589-600

46 Momburg Belt Tourniquet in Gynecology and Obstetrics. R. de Bovis.
47 Experimental Research on Relations between Shock and Infection. G. Gibelli.

45. **Circumscribed Serous Meningitis of the Brain Cortex.**—Raymond and Claude expatiate on the differentiating points and the advantages of prompt operative treatment. The inflammation is unable to heal spontaneously and it is not benefited by lumbar puncture, but draining away the compressing fluid is liable to be followed by a rapid and permanent cure. The symptoms may be those of a brain tumor or abscess or diffuse meningitis—all affections in which the outlook for surgical intervention is far from promising, while the circumscribed serous meningitic lesion promptly subsides after incision of the cyst-like protuberance of the meninges. The authors consider that the possibility that the trouble may be of this nature should encourage surgical interference even in the most apparently desperate cases of brain lesions. They describe a case personally observed, the first on record with complete operative and autopsy findings. The patient was a man of 38, not seen until the brain had suffered severely from the compression induced by an accumulation of a serous fluid between the arachnoid and pia mater, localized in the lower Rolandic region and part of the fissure of Sylvius. This external serous meningoencephalitis of the cortical region of the brain may be accompanied by ventricular meningitis, especially when the inflammation originates in the ear, or it may occur as an isolated, easily accessible and curable circumscribed lesion. Several cases of an analogous affection of the spinal meninges have been reported in the last eight years, but only two or three involving the cerebral meninges. Axhausen's recent case is a typical example of the latter; the patient, a girl of 11, was cured by his prompt and twice repeated trephining and incision of the dura mater, which permitted the escape of a serous fluid under high pressure; the symptoms recurred at first when the incision healed. The fluid was sterile and he ascribes the trouble to a blow on the head from a stone a few days before. Finkelstein has reported a similar case which he classed as circumscribed adhesive arachnitis at the base of the brain, the patient recovering after the operation, as also in Unger's case, in which a localized syphilitic meningitis caused a collection of serous fluid in the cerebellopontine angle with corresponding symptoms. There was no constitutional taint in the case reported by Placzek and Krause recently: a young woman presented the syndrome of a tumor in the posterior cerebral fossa, but the operation revealed merely an accumulation of cerebrospinal fluid between the layers of the arachnoid and some thickening of the dura mater which was adherent to the pia. Recovery was complete after the operation in two sittings, but the temperature continued to fluctuate from above to below normal for three months afterward. All the reports mention the rising temperature and pulse rate and the sudden drop of temperature on evacuation of the fluid, but the clinical signs vary with the localization. The absence of choked disc is an important aid in differentiating the process from a brain tumor as also the high temperature which is rare with the latter. In Axhausen's case the symptoms suggested an acute meningitis but in the case reported the slow and gradual development of symptoms through several months suggested a tumor growth.

Archiv für Gynaekologie, Berlin

LXXXIX, No. 2, pp. 245-443. Last indexed October 30, p. 1519

48 Operations for Tumors Complicating Pregnancy or Delivery. (Intraperitoneale Operationen bei Schwangerschaft oder Geburt complicirenden Tumoren.) E. Clemenz.
49 *Treatment of Uterine Myomas at the Menopause. H. Palm.
50 *Melæna Neonatorum. Vassmer.
51 Elastic Fibers and Vessels of the Uterus. (Ueber die elastischen Fasern und die Gefässe des Uterus.) O. Fels.
52 Solid Tumors in Umbilical Cord. (Solid Nabelschnurtumoren.) R. Herweg.
53 *Pregnancy after Ventrofixation for Retroflexion of the Uterus. (Schwangerschaft nach Ventrofixation wegen Retroflexio uteri fixata.) R. Birnbaum.
54 Blood Findings in Prognosis of Puerperal Fever. (Prognosenstellung beim Kindbettfieber mit Hülfe der Blutuntersuchung.) F. Kirstein.
55 *Substitution of Salt Solution for Escaped Amniotic Fluid after Rupture of Fetal Membranes. (Die Erneuerung des abgeflossenen Fruchtwassers nach der E. Bauer'schen Methode.) Schallehn.
56 *The Country Doctor as an Obstetrician. (Der praktische Arzt als Geburtshelfer auf dem Lande.) F. v. Winckel.
57 *Eclampsia and Meteorologic Conditions. (Eklampsie und Witterung.) R. Schlichting.
58 Tubo-uterine Pregnancy. (Ueber tubo-uterine Graviditât nebst Bemerkungen zur Anatomie der Tube.) E. Lehmann.
59 Action of Colon Bacillus on Uterine and Vaginal Mucosa. (Experimentelle Untersuchungen über die Einwirkung des *Bacterium coli commune* auf die Schleimhaut der Gebärmutter und der Scheide.) G. Heinricius.
60 Suprasymphyseal Cesarean Section. (Erfahrungen bei dem suprasymphysären Kaiserschnitt.) E. Runge.

48. **Uterine Myoma at the Menopause.**—Palm describes a typical case of myomatous uterus in which slight symptoms were first noticed during the forties and under expectant and palliative treatment continuing until the age of 60, when the tendency to hemorrhage seemed to be arrested. After five years, however, it was found that a carcinoma had developed at which time conditions were by no means favorable for a major operation. He cites the case as one argument among others in favor of prompt operative treatment of uterine myoma whenever it causes symptoms, especially hemorrhage.

50. **Treatment of Melena of the New-Born.**—Vassmer tabulates the details of 67 cases he has found on record during the last 23 years. The mortality was 32.8 per cent., but it was only 10 per cent. in the 20 cases in which blood was found in the stools alone; 83.3 per cent. in the 6 cases in which it was found in the vomitus alone. Only 8.8 per cent. succumbed in the 34 cases in which gelatin was systematically given, mostly by the mouth and subcutaneous injection. A 1 or 2 per cent. solution was generally used, twice a 5 per cent., and once a

10 per cent., injecting 10 c.c. at a time, the injection of the weaker solutions repeated three or four times a day. As the 10 per cent. solution seemed to be tolerated without harm, he thinks that a small amount of this would be better than larger amounts of a weaker solution. In his own successful case reported in detail he injected 20 c.c. of 2 per cent. solution of gelatin, half in each scapular region, with more by the mouth, with 3 drops of adrenalin 1 to 1,000. This was repeated twice; there was no albuminuria afterward and the child developed normally.

52. **Pregnancy After Ventrofixation for Retroflexion of the Uterus with Adhesions.**—Birnbaum states that four women have borne children since without mishap or disturbance of any kind out of 20 treated by ventrofixation for a retroflexed and bound-down uterus. In the other cases the peritonitic adhesions and inflammatory changes found in the adnexa amply explained the sterility. When such are found there is not much hope of conception later.

55. **Substitution of Salt Solution for Escaped Amniotic Fluid.**—Bauer called attention in 1902 to his special inflatable bag with a central open tube through which he injected salt solution to take the place of the amniotic fluid lost by premature rupture of the bag of waters. Peters has also recently made use of a similar procedure. Schallehn here reports 5 cases in addition to the 5 previously recorded in which this measure was applied. In 6 of the cases it was done on account of increasing irregularity in the fetal heart sounds, and the desired effect was realized in 3 of the cases. In a number of others the measure was applied to facilitate version and the result was satisfactory in some. The labor contractions at once grew stronger in nearly every case. He has been timid about applying the measure from fear of inducing atony and atonic hemorrhage. This occurred in one case of contracted pelvis in his experience. Serious atonic hemorrhage developed after delivery which had been preceded by introduction of 500 c.c. of salt solution into the uterus. The immediate effect of the latter was excellent, the heart sounds became regular and labor more vigorous.

56. **The Country Doctor as an Obstetrician.**—In concluding this practical talk on the exigencies of obstetrics in country practice, von Winckel urges carefully written notes of the various cases. "This will transform your memories into experiences of great practical value," he declares. "No one who has not tried it will believe how important this is and how much can be learned in this way. It is an education in itself to read over and compare carefully written notes and records of this kind."

57. **Eclampsia and the Weather.**—Schlichting states that damp, bleak weather and the sultry and humid weather seem to have an influence on the incidence of eclampsia, as he shows by tables of the 262 cases of eclampsia at the Berlin Charité in the last four years compared with the weather charts. The cases in which the women present symptoms suggestive of toxemia but without actual eclampsia should be taken into account in study of the connection between meteorologic conditions and eclampsia. The two or three days preceding the actual disease should be included. (All but three of the articles in this number of the *Archiv* had been destined for a *Festschrift* on the occasion of Max Runge's sixtieth birthday, but he died just before this date.)

Archiv für Kinderheilkunde, Stuttgart

LII, Nos. 1-3, pp. 1-240. Last indexed November 13, p. 1698

61 Thirty European Cases of Mongolian Spot. (Ueber den sogen. Mongolenfleck auf Grund von 30 Fällen.) A. v. Koos.
62 Repeated Attacks of Scarlet Fever. (Wiederholte Erkrankung an Scharlach.) H. Weissenberg.
63 Syndrome after Vaccination against Scarlet Fever. (Vaccin-Scarlatina.) G. E. Wladimiroff.
64 Multiple Malignant Chloromas in Boy of Four. (Zur Casuistik der multiplen bösartigen Geschwülste im Kindesalter). J. Winocouroff.
65 Rubeola Simulating Scarlet Fever. (Scharlachähnliche Röteln.) J. Baraunikow.
66 *Importance of Lime in Pathology of Rachitis. (I. Der Mineralgehalt gesunder und rachitischer Knochen. II. Der Physiologische Kalkbedarf und Rachitis infolge von unbefriedigtem Kalkbedarf.) J. A. Schabad.
67 *Diagnosis and Prognosis of Appendicitis in Children. J. E. Zimmermann.
68 Autoinoculation with Vaccine. L. Wolfer.
69 Etiology of Congenital Inspiratory Stridor. J. Rothschild.
70 *Pathology of Parasyphilis in Children. A. Baginsky.
71 *Elimination of Salt in Nephritis and Edema of Renal Origin. (Kochsalzausscheidung bei Nierenentzündung und die nephrogenen Oedeme.) C. Manshardt.

66. **Importance of Lime in the Pathology of Rachitis.**—As a further contribution to this subject, Schabad relates the results of research which has shown that the proportion of water in rachitic bones is exceptionally high and that of dry substance exceptionally low. The proportion of ash is also unusually low while the proportion of organic elements is abnormally high. He found that the weight of the skeleton in the first years of life approximates 16 per cent. of the total body weight and the lime proportion of the bones 1.25 per cent. of the total weight, about 7.7 per cent. of the weight of the skeleton. The highest proportionate deposit of lime occurs during the period of most active growth, that is, between the second and fourth month for breast-fed and second and sixth months for artificially-fed infants. About 70 per cent. of the lime in breast milk is retained, but only 30 per cent. of that in cow's milk, owing to the readier assimilability of the breast milk. Although cow's milk contains four times as much lime as breast milk, yet a much larger proportion of the lime in the latter is utilized. Consequently bottle-fed infants are liable to suffer from a lack of sufficient lime, especially when they are given cow's milk much diluted. Even in breast milk there is liable to be a deficit in lime unless it contains the maximal physiologic proportion, the range being from 0.036 to 0.047 per cent. The experimental rachitis induced in animals by depriving them of lime cannot be distinguished either chemically, clinically or macroscopically from spontaneous rachitis, but the microscope shows that it is what he calls pseudorachitic osteoporosis. It is probable that besides genuine rachitis in children there is also a pseudorachitis resulting from inadequate intake or utilization of lime. It cannot be differentiated clinically from true rachitis but it presents certain features characteristic of the experimental type.

67. **Appendicitis in Children.**—Zimmermann states that operative treatment was required in 60 of the 64 children with appendicitis in Mertens' service at Bremen. The mortality of appendicitis in children is higher than in adults—in his series it was 11.7 per cent.—but he ascribes this to the fact that the affection is not recognized so early in children.

70. **Parasyphilis in Children.**—Baginsky reviews the field covered by the term parasyphilis, and declares that it is too loose and too broad for further acceptance now that the discovery of the spirochete and serodiagnosis permit accurate differentiation of true acquired syphilis in its second or third stage as well as of the manifestations of inherited syphilis. Only the cases with positive findings should be classed as true syphilis; this will exclude many affections hitherto loosely called parasyphilitic. Recent research has confirmed their various etiology, even when they closely simulate the manifestations of syphilis. This applies particularly, he says, to infantile spinal paralysis, infantilism, hydrocephalus, blood affections, such as hemophilia, severe anemia, congenital heart and other defects, aplasia, etc.

71. **Elimination of Salt in Nephritis.**—Manshardt tabulates the metabolic findings in ten cases of nephritis in Starck's service at the Kiel hospital for children, and gives for comparison a number of similar series published by other writers. The findings confirm the assumption that the elimination of salt is to a certain extent a reliable index of the functional capacity of the kidneys and of the amount of injury from the nephritis. The retention of salt seems to be the primary phenomenon; water is not retained until after there has been considerable retention of salt in some cases. Then large amounts of water may be retained before any tendency to edema becomes evident. In one such case the weight increased over 13 pounds before the dropsical condition became manifest. The primary retention of salt is thus an important element in the development of dropsy although other factors may cooperate, such as disturbances in the circulation, anatomic changes in the osmotic membranes, altered nutritional conditions in the cells throughout the body in general, and inability of the kidneys to eliminate water.

Archiv für klinische Chirurgie, Berlin

XCI, No. 1, pp. 1-244. Last indexed November 13, p. 1698

72 Pathology and Treatment of Umbilical Hernia in the Adult. (Nabelhernien der Erwachsenen.) E. Ruge.
73 Snapping Hip Joint. (Schnellende Hüfte.) F. Staffel.
74 Ethyl Chlorid-Oxygen General Anesthesia. (Aethylchlorid-Sauerstoff-Narkose.) Lotheissen.
75 The Muscular Extension Apparatus of the Knee in Health and after Fracture of the Patella. (Untersuchungen über den normalen Kniestreckapparat mit Rücksicht auf die bei der Patellarfractur bestehenden mechanischen Verhältnisse.) O. v. Frisch.
76 *Ultimate Results of Kukula's Method of Fixation of Wandering Kidney. S. Kostlivy.
77 *Inflammation of the Cecum. (Acute primäre Typhlitis.) W. Röpke.
78 *Operative Treatment of Inguinal Hernia in Children. (Kindliche Leistenbrüche.) P. Kovacs.
79 Fracture of the Cuboid. (Isolirte Fractur des Os cuboideum pedis.) C. Gontermann.
80 Importance of Suture Technic for Asepsis. (Bedeutung der Suturtechnik für die Wundasceptik.) C. F. Heerfordt.
81 Volvulus of the Empty Intestine in Starvation. (Volvulus intestinorum als Krankheit des hungernden Menschen.) S. Spasokukotzky.
82 Numerous Free Bodies in Isolated Deforming Arthritis of the Sigmoid Cavity. (Zahlreiche freie Gelenkkörper bei isolirter Arthritis deformans der Fossa cubitalis.) E. Ruge.
83 *Technic and Results of Tendon Transplantation for Quadriceps Paralysis. (Endresultate der Sehnentransplantationen bei Quadricepslähmung.) W. Böcker.

76. Kukula's Method of Fixation for Wandering Kidney.—Kostlivy has been examining the ultimate outcome in 21 cases in which Kukula fastened the wandering kidney by slitting the quadratus lumborum from the twelfth rib down to the junction of the middle and lower thirds of the muscle, and inserting the lower pole of the kidney in this slit nearly to the hilus. An illustration shows the details of the operation, the kidney riding freely in the slit in the muscle. All but one of the patients were women, and in 3 cases the disturbances were first noted just before 20; in another case the kidney became displaced by a trauma after 50; in the others the disturbances developed during the third decade. Trauma was incriminated in 5 cases and childbirth in 2. In only 2 cases was the left kidney affected, including one case in which the left kidney also required fixation after an interval of nearly two years. Complicating appendicitis was observed in 5 cases, once four days after the fixation. In one case with severe general enteroptosis acute fatal arteriomesenteric incarceration of the stomach followed the second day after fixation. All the other patients were freed from all disturbances. The good results and the simple and rapid technic—the operation requiring only 20 or 25 minutes in all—commend it, Kostlivy asserts, for all cases of wandering kidney causing disturbances. The kidney is fastened a trifle lower than its normal position but this has not proved any drawback. As the kidney bulges each side of the slit it is impossible for it to slip out, and it is held further by the suturing of the edge of the muscle to the fibrous capsule and by the adhesions which form in consequence of the denudation of the surface by stripping off the adipose capsule where the kidney fits into the slit. The detached ends of the fatty capsule thus loosened from the surface of the kidney are brought together behind the slit muscle and sutured together again.

77. Primary Inflammation of the Cecum.—Röpke reports from Riedel's clinic at Jena four cases of this kind and reviews similar cases in the literature.

78. Operative Treatment of Hernia in Children.—Kovacs states that 143 of 144 children have been completely cured of their tendency to inguinal hernia by an operation in Alapy's service at Budapest, and special circumstances were responsible for the one failure. The interval since has been from six months to a year up to several years, and the perfect results encourage operative intervention in every case of inguinal hernia in a child and even in infants unless they are kept scrupulously clean so that a truss can be safely worn. A few minor modifications of the Bassini technic are described and recommended.

83. Ultimate Results of Tendon Transplantation for Quadriceps Paralysis.—Böcker gives the history to date of ten children thus operated on, the results, he asserts, confirming the superiority of the periostal method of tendon transplantation for quadriceps paralysis and of the Lange and Krause technics.

Berliner klinische Wochenschrift

December 13, XLVI, No. 50, pp. 2225-2280

84 Congenital Dislocation of the Hip Joint in Infants. (Diagnose und Behandlung der angeborenen Hüftverrenkung im Säuglingsalter.) G. Joachimsthal.
85 Nitrites, Nitrous Acid and Nitric Oxid as Cholera Toxins. (Nitrit, salpetrige Säure und Stickoxyd als Choleragifte.) R. Emmerich.
86 Causes of Meat Poisoning. (Zur Frage der Aetiologie der Fleischvergiftungen.) Ridder.
87 *Facial Neuralgia. (Behandlung der Gesichtsneuralgie.) W. Alexander.
88 Meningomyelitis Simulating Spinal Cord Tumor. K. Mendel.
89 Treatment of Placenta Prævia. A. Dührssen.
90 Fluctuations in Antitrypsin Content of Human Blood in Disease. (Schwankungen des Antitrypsingehaltes im menschlichen Blut während des Krankheitsverlaufes.) Klug.
91 Syndrome of Pseudotumor in the Brain Recurring during Three Pregnancies. (Fall von zuerst in der Schwangerschaft auftretenem und in zwei nachfolgenden Schwangerschaften jedesmal rezidivierendem "Pseudotumor Cerebri.") W. Nolen. Commenced in No. 49.

87. The General Practitioner and Facial Neuralgia.—Alexander remarks that the general practitioner never sees a case of severe chronic trigeminal neuralgia as such patients seek the specialists and surgeons. He describes the pitiable desperate condition of the sufferers, shrinking from eating, bathing and even talking, as liable to bring on an attack, underfed and eczematous, their condition almost excusing the frequent morphin addiction or suicide. He draws the picture from life to emphasize the importance of curing the neuralgia when the general practitioner encounters it in an early stage, and then reviews the present status of treatment after removal of all possible causes, examining the fundus of the eye more than once to exclude optic disturbances. Treatment should begin with a vigorous purge, a general sweat, supplemented by salicylates internally, rest in bed and light diet. These measures should be enforced systematically in all recent cases of neuralgia of the face. If recovery does not follow in a few days the sweating procedure should be repeated and local heat applied for from four to eight hours daily, with a repetition, still more energetic, of the above medication, and perhaps application of galvanic electricity. If benefit is not apparent, the strength of the current can be increased and the sittings lengthened beyond the ordinary dosage. If no improvement is apparent after a week he advises aconitin, pushed to the limit of tolerance, and always accompanied by vigorous purging. The latter benefits by reducing the blood pressure which has a favorable action always on pain, besides clearing the system of elements for autointoxication which is now regarded as a very important factor in the etiology of neuralgia. If this course of treatment fails, there is not much prospect of relief from internal measures, and the patient should be given arsenic for a general tonic while a trial may be made of local injection of large amounts of saline solution (Schleich), but this should not be repeated more than two or three times. Lange's success with local injection of a large amount of a dilute anesthetic mixture in sciatica encouraged its application in trigeminal neuralgia, and the impression to date is favorable although the records include too few cases for decisive judgment. About 30 c.c. of the fluid is injected at the emerging point of the nerve; the foramen is readily found and this measure does not require special skill. It is ineffectual for recurrences after an operation as the scar tissue will not stretch sufficiently to answer the desired purpose. The benefit is generally only transient but the procedure can be repeated often. If all these measures fail, the only recourse is to destroy the nerve, and as injection of alcohol is easier, simpler and less dangerous than neurectomy, it should be given the preference, especially as it can be repeated if the effect wears off in time. It has the further advantage that if the wrong branch was thus treated, it is easy to remedy the mistake. If the peripheral alcohol injection does not prove successful the alcohol should be injected deeper, at the base of the skull. If an injection for each branch still fails to cure, then an intracranial operation should be considered. Even when this becomes necessary, the preceding alcohol injections have allowed such a respite that the patient has been able to take more nourishment and his general health has been so much improved that he is in much better shape for the operation. The latter is indicated when recurrences can no longer be warded off with the alcohol. (The alcohol technic and

experiences with it have been described in THE JOURNAL during the last two years. See especially Patrick's article, Dec. 11, 1909, page 1987, also summaries of articles by others, THE JOURNAL, June 5, 1909, pages 1867 and 1890, and June 13, 1908, page 2029.)

Correspondenz-Blatt für Schweizer Aerzte, Basle

December 15, XXXIX, No. 24, pp. 833-872

92 Case of Calcification of the Liver and Other Viscera. E. Hedinger.

Deutsche medizinische Wochenschrift, Berlin

December 16, XXXV, No. 50, pp. 2201-2248

93 *Myoma and Conception. (Myom und Fertilität.) A. Martin.
94 *Potassium Chlorate in Serodiagnosis of Syphilis. (Chlorsaures Kali bei der Serodiagnose der Syphilis.) L. Brieger and H. Renz.
95 *Anatomic, Clinical and Operative Study of Chronic Posterior Parametritis. L. Fraenkel.
96 Pneumococcus Sepsis and Serotherapy. E. Rodenwaldt.
97 Findings in Central Nervous System of Mice under Arsacetin Treatment: Artificial Dancing Mice. (Weitere Untersuchungen am Zentralnervensystem von mit Arsacetin behandelten Mäusen: sogen künstlichen Tanzmäusen.) P. Röthig.
98 Lipuria. W. Voit.
99 Technic for Production and Use of Compressed Air in Hospitals. (Der Luftkompressor im Krankenhaus.) F. Kuhn.
100 Dental Protheses for Facial Defects. (Anwendungsweise zahnärztlicher Prothetik im Bereich des Gesichts.) H. Schröder.

93. **Myoma and Conception.**—Martin is convinced that neither the presence, location, size or multiplicity of myomas in the uterus has any influence in preventing conception. Rather the reverse, the reaction on the part of the adnexa to the presence of the myoma in the uterus favors conception and explains the delayed menopause and the pregnancies occurring late in life in women with myoma. In his experience the husband was responsible for the sterility in a large proportion of the childless marriages. He has encountered 14 cases in which conception followed removal of the myoma, and he knows of 13 other cases, but several of the women did not marry until after the operation.

94. **Potassium Chlorate in Serodiagnosis of Syphilis.**—Brieger states that in 65 syphilitic and non-syphilitic patients potassium chlorate used in the place of the serum of rabbits prepared by preceding injection of sheep blood corpuscles, gave exactly the same findings as when the classic Wassermann technic was used. The substitution of the potassium chlorate for the specific hemolysin hitherto deemed indispensable materially simplifies the serodiagnosis.

95. **Chronic Posterior Parametritis.**—Fraenkel remarks that this title is a misnomer as there may be no evidences of existing or past inflammation. The trouble is rather a posterior fixation of the lower segment of the uterus from changes in the connective tissue behind the cervix and vagina, the elastic fibers and muscle elements being replaced by connective tissue, especially in the sacrouterine ligaments. The result is a retraction of the ligaments drawing up and fastening the lower part of the uterus and thus entailing various disturbances. He has encountered this condition in every second patient with gynecologic disorders elsewhere and as the chief source of the trouble in every tenth case, out of 9,561 gynecologic patients examined. The diagnosis is facilitated by functional tests of the posterior ligamentary apparatus, especially the lack of relaxation as the uterus is retroverted. When the condition cannot be remedied by removal of the cause, tonics and various measures to promote absorption, etc., he severs the retracted ligament holding the uterus in this abnormal position, and interposes a piece of omentum to prevent the stumps growing together later, which otherwise almost inevitably occurs. His research on animals and on the cadaver has shown that the omentum can be drawn down to the bottom of Douglas' pouch without undue traction. He fastens the omentum to the cervix and vagina on one side and to the rectum on the other, and reports complete success from this intervention in two cases with an interval of nearly four years since. The cause of the condition is very often, he says, the result of the abnormal muscular reaction to masturbation, and abstention from this alone is frequently sufficient to restore conditions to approximately normal under general tonic measures.

Deutsche Zeitschrift für Chirurgie, Leipsic

November, CII, Nos. 4-6, pp. 301-604

101 Value of Blood Examination in Surgical Diagnosis. (Wert der Blutuntersuchung in der chirurgischen Diagnose.) F. E. Sondern.
102 *Surgery of the Biliary Apparatus. (Zur Chirurgie der Leber und der Gallenwege.) A. Jenckel.
103 Spontaneous Hemophilia. M. Matsuoka.
104 *Operative Treatment of Facial Paralysis. (Chirurgische Behandlung der Facialislähmung.) A. Jianu.
105 Fracture of Sesame Bones in Thumb and Big Toe. (Beitrag zu den Brüchen der Daumen- und Grosszehen Sesambeine.) R. Morian.
106 Origin and Treatment of Exostosis of the Calcaneus. (Zur Entstehung und Behandlung des Kalkaneusspornes.) R. Sarrazin.
107 Sarcoma of Rectum. E. Schumann.
108 Advantages and Indications for Appendicostomy. M. Wilms.
109 Some Technical Difficulties in Urethral Distention in Treatment for Hypospadias. (Ueber einige technische Schwierigkeiten, welche der Verlagerungsmethode bei der Hypospadie und anderen Harnröhrenzuständen anhaften: Auszlehungsmethode.) C. Beck.
110 Experiences with Amputation of the Thigh by Gritti's Technic. Mesus.
111 Bismuth Poisoning. (Wismutvergiftung nach Injektion.) M. Matsuoka.
112 Case of Paget's Osteitis Deformans. (Osteomalacia chronica deformans hypertrophica nach Recklinghausen.) Id.
113 Fracture of Outer Condyle of the Tibia. (Fraktur des Condylus externus tibiae.) H. Meerwein.
114 Plastic Periosteum Operation for Abdominal Wall Hernias. (Zur Verwendung der freien Periostplastik bei der Operation von Bauchwandhernien.) A. Löwen.
115 Operative Treatment of Gastroptosis. S. Weisa.
116 Removal of Lung under Both Differential Pressure Procedures. (Untersuchungen über die Lungenexstirpation unter vergleichender Anwendung beider Formen des Druckdifferenzverfahrens.) S. Robinson and F. Sauerbruch.
117 Spontaneous Laceration of Tendon of Extensor Pollicis. (Spontane Zerreissung der Sehne des langen Daumenstreckers.) zur Verth.
118 Volitional and Habitual Dislocations of the Knee. (Willkürliche und habituelle Luxationen im Kniegelenk.) Id.

102. **Surgery of the Biliary Apparatus.**—Jenckel analyzes the experiences at Braun's Göttingen surgical clinic during the last thirteen years, and the lessons therefrom.

104. **Surgical Correction of Facial Paralysis.**—Jianu gives an illustrated description of a method of fastening to the corner of the mouth a strip of muscle slit up from the masseter, or the strip can be slit and sutured in turn to the superior and inferior orbicularis oris. Jonnescu has performed this operation in a case of facial paralysis following a blow from a board on the left side of the face. The results have been very satisfactory. The saliva no longer drools from the mouth and mastication proceeds normally. The operation is indicated more for paralysis of the lower facial nerve, or this technic might be combined with other procedures.

Fortschritte der Medizin, Leipsic

December 10, XXVII, No. 34, pp. 1281-1312

119 *Parotitis with Pneumonia. D. G. Zesas.
120 Treatment of Pathologic Conditions in New-Born Infants. (Therapie der Erkrankungen der Neugeborenen.) P. Sittler.

119. **Parotitis with Pneumonia.**—Zesas has collected 27 cases of parotitis as a complication of pneumonia and adds to the list a case personally observed. The parotitis developed the third day of the disease with a rigor and the temperature ran up to 40.5 C. (105 F.). The swelling spread to include the neck around to the back but there was no aggravation of the pneumonia symptoms. Several deep incisions were made in the region of the parotid gland, but no pus was found and no relief followed, the patient, a woman of 62, succumbing sixteen hours later. No autopsy. In 7 of the cases on record the parotitis was bilateral and led to suppuration with pneumococci in the pus. The prognosis of this complication seems to be graver the earlier its onset. Zesas' advice is not to rely on possible resolution, and not to weaken the patient by letting him lose blood unnecessarily.

Jahrbuch für Kinderheilkunde, Berlin

December, LXX, No. 6, pp. 667-794

121 *Severe Digestive Insufficiency in Children after Weaning. (Ueber schwere Verdauungsinsuffizienz beim Kinde jenseits des Säuglingsalters.) O. Heubner.
122 Complements in Breast Milk. (Ueber die Komplemente der Frauenmilch.) W. Kolff and C. T. Noeggerath.
123 Proportion of Hemolytic Complement in Infant's Blood Serum Not an Index of Child's Constitution. (Ist der hämolytische Komplementgehalt des Blutserums ein Mass der Säuglingskonstitution?) L. Findlay, R. Fua and C. T. Noeggerath.
124 Importance of Comparing Curves of Weight and Height in Infants and Weakly Children. (Zur Pathologie des Längenwachstums bei Säuglingen und über das Wachstum debiler Kinder. W. Freund.

121. **Severe Digestive Insufficiency in Children After Weaning.**—Heubner has encountered 10 cases of a chronic nutritional disorder, the same type which Herter in older children calls "infantilism from chronic undernutrition." Herter's views were summarized in THE JOURNAL, March 13, 1909, page 913, and Heubner accepts his research as a most valuable contribution to science but rejects his conclusions as to the origin of the disturbances. Five of Heubner's little patients were so severely affected that one died; the others presented disturbances in a milder form. He explains the condition as a congenital defective or feeble state of the digestive apparatus. So long as the child is nursing it is able to cope with the digestive demands, but when it is weaned the insufficiency of the digestive apparatus is soon revealed. His patients were all of the upper classes and each was surrounded with the most scrupulous and devoted care. The digestive apparatus seems to be unable to tolerate milk and carbohydrates; the ferments that normally take charge of the carbohydrates seem to be lacking; the stools are of the lime-soap or fermentation dyspepsia types, but the most striking feature is the repeated sudden drop in weight. The child draws on its own reserves and although every change in diet may cause some slight improvement, yet this is speedily followed by a sudden decline in weight and signs of digestive disorder. The lack of recuperating power is the most serious element; all the organs seem to be objectively sound. He describes the clinical picture in detail and the varied dietetic treatment with which he was able to bridge over this threatening period of months and years, finally bringing the children into a fairly healthy condition. In some cases breast milk was the only anchor that held; one boy of 5 was given a wet nurse and was tided along on breast milk until past 7. He is now, twenty years later, strong and hearty. This was the severest case with a favorable outcome. In all the cases a neuropathic or other morbid inheritance was evident. Schütz has encountered 143 adults and 12 older children with this same syndrome; his experience and conclusions were summarized in THE JOURNAL, Aug. 21, 1909, page 662. Like Herter, he ascribes the trouble to a change in the intestinal flora, but Heubner thinks that this is subordinate, the insufficiency of the digestive apparatus being ample to explain the disturbances, and serving as a guide through the months of dietetic treatment.

Medizinische Klinik, Berlin

December 12, V, No. 50, pp. 1877-1916

125 *Perforated Gastric Ulcer. (Perforation des Ulcus ventriculi rotundum und seine operative Behandlung.) Steinthal.
126 Direct Visual Inspection of Upper Air Passages. (Die direkte Laryngo-Tracheo-Bronchoskopie und ihre Bedeutung für Diagnose und Therapie.) T. Albrecht.
127 Modern Diagnostic Methods as Applied to the Stomach. (Magendiagnostik.) K. Kretschmer.
128 High-Frequency Currents in Therapeutics. L. Freund.
129 Intravenous Injection of Diphtheria Antitoxin. H. Fette.
130 Nitrites Not Essential Factor in Cholera. V. R. Stühlern.

125. **Perforation of Gastric Ulcer.**—Steinthal reports 15 cases in which operation followed the perforation within twelve hours in all but 2 instances. In none of the cases was any attempt made to excise the ulcer and the spot was merely drawn up and sutured. Unless the ulcer was in the vicinity of the pylorus, thus creating a tendency to obstruction of the pylorus later, the suturing was not supplemented by a gastroenterostomy. In 4 cases there had been gastric disturbances for years, refractory to long continued treatment, and he urges the necessity for considering operative intervention in such cases without waiting for perforation. One patient in this group had been obliged to use the stomach-tube semi-occasionally for years; she succumbed to a secondary hematemesis while convalescing from the operation for the perforation. Another patient had suffered for years from repeated vomiting daily; a secondary gastroenterostomy was required later in this case. He insists that every case of manifest pyloric stenosis, regardless of the degree of obstruction, should be referred to the surgeon.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

December, XXX, No. 6, pp. 675-818

131 *The Centennial of Ovariotomy. A. Martin.
132 Development of the Hymen. F. J. Taussig.
133 Blood Picture in Parturients. (Hämoglobingehalt und Anzahl der roten und weissen Blutkörperchen bei Wöchnerinnen.) J. Ogata.
134 The *Bacillus aerogenes capsulatus* in Infections in Obstetric Cases. F. Scheidler.
135 Transperitoneal Vaginal Supravaginal Amputation of the Uterus or Hysterectomy. (Eine neue Methode.) A. Rieck.
136 Desmoid Vaginal Tumors. E. Kehrer.
137 *Clinical Importance of Thrombosis and Present Status of Surgical Treatment. A. Hoffmann.

131. **The Centennial of Ovariotomy.**—The *Monatsschrift* opens with a portrait of the "father of ovariotomy" and Martin adds a historical sketch of the way in which the operation was introduced into Germany and its career there since. He pays high tribute to the courage of McDowell and his imitators at that early day.

137. **Thrombosis.**—Hoffmann's article is a compilation of what has been written in late years on the origin, diagnosis and surgical treatment of thrombosis in otology, gynecology, obstetrics and surgery in general, concluding with an alphabetical list of references filling twelve pages.

Münchener medizinische Wochenschrift

December 7, LVI, No. 49, pp. 2505-2560

138 Transmission of Acute Anterior Poliomyelitis to Monkeys and from Monkey to Monkey. (Zur Aetiologie der epidemischen Kinderlähmung.) P. H. Römer.
139 *Advantages of Plaster Cast in Early Stage of Acute Anterior Poliomyelitis. (Zur Behandlung des Frühstadiums der Poliomyelitis anterior acuta.) G. Hohmann.
140 *Successful Prophylaxis of Postoperative Peritonitis. O. Hoehne.
141 Designation of Colors as Test for Intelligence in Children. (Das Farbenbenennungsvermögen als Intelligenzprüfung bei Kindern.) F. Warburg.
142 Prevalence of Gastric Ulcer at Munich. C. Kayser.
143 Comparative Tests of Methods for Disinfecting Rooms. (Vergleichende Untersuchungen über Raumdesinfektion mit Formaldehyd-Kaliumpermanganatverfahren.) B. Hannes.
144 Granular Form of Tubercle Bacilli in Sputum. S. Rosenblat.
145 Advantages of Addition of India Ink to Specimen in Search for Spirochetes. (Ueber den Nachweis der Spirochaete pallida mittels des Tuscheverfahrens.) R. Frühwald.
146 Immunity of Hedgehog to Snake Venom, and Lack of Special Resistance to Ordinary Poisons. (Die Immunität des Igels gegen echte Toxine, seine Widerstandsfähigkeit gegen banale Gifte.) A. Strubell.
147 *Acute Cryptogenous Gonorrheal Arthritis. O. Mayer.
148 *Reply to Criticisms of Ehrlich's Side-Chain Theory. (Kritiker der Seitenkettentheorie im Lichte ihrer experimentellen und literarischen Forschung.) P. Ehrlich and H. Sachs. Concluded in No. 50.
149 *Demoralizing Influence on Practical Medicine of Present Tendencies of Manufacturing Chemists and Druggists. (Ueber den verderblichen Einfluss der gegenwärtigen Richtung in den chemischen Fabriken und Apotheken auf die praktische Medizin.) W. Jaworski and E. Miesowicz.

December 14, No. 50, pp. 2561-2616

150 *Etiology of Diabetes Insipidus. A. Schwenkenbecher.
151 *Influence of Charcoal on Cancer Cells. (Findet eine Beeinflussung des Krebses durch Kohle statt?) A. Sticker.
152 Importance of Fibrin for Arrest of Postpartum Hemorrhage. (Experimentelles über die Bedeutung der Gerinnungskomponente für den postpartalen Blutstillungsmechanismus.) M. Neu.
153 Relative Indications for Forceps in Delivery. (Bedeutung der relativen Zangenindikation für Unterricht und Praxis.) H. Fehling.
154 *Deep Local Application of Heat. (Diathermie, Transthermie, Thermopenetration.) F. Nagelschmidt.
155 *Improved Means of Roentgen-Ray Dosage. G. Schwarz.
156 Advantages of Ichthyol in Treatment of Furuncle in Outer Ear. D. Bruch.

139. **Immobilization in Treatment of Early Stage of Acute Poliomyelitis.**—Lange has applied a plaster cast in two cases of acute poliomyelitis in children between one and two years old. The paralysis developed suddenly in the night, after a febrile phase. A week or so later the pain was still severe and the children screamed at the slightest touch. The plaster cast was applied as for spondylitis and the relief was prompt.

140. **Successful Prophylaxis of Postoperative Peritonitis.**—THE JOURNAL has previously mentioned the good results attained by Glimm with prophylactic injection of camphorated oil into the peritoneum directly after an operation to ward off peritonitis. His experimental and clinical research demonstrated the feasibility and efficiency of this measure. Hoehne here reports further work in this line, confirming the facts but improving on the technic. He found by experimental tests that the success of the measure was due to the production of an aseptic inflammatory reaction to the injection of a harmless substance. By giving the substance time to induce the maximum of the reaction the effect was immeasurably enhanced. Consequently in the clinic he makes the intraperitoneal injection three or four days before the contemplated operation. He now has a record of 42 cases in which this was done, including 24 of cancer of the uterus or vagina, 6 of

pyosalpinx, and the others of various suppurative processes. Of the different substances tried, camphorated oil proved the most satisfactory, and he injects 30 c.c. of warmed, 10 per cent. camphorated oil, under local anesthesia, directly into the peritoneal sac, on the median line, just below the umbilicus, the trocar and technic generally being about the same as for lumbar puncture. A case is described here in detail to show the workings of this prophylactic measure. The patient reacted to the injection with only moderate abdominal pain and slight tenderness, the pulse and temperature being unmodified. At the laparotomy four days later the cancerous uterus was removed and the peritoneum was seen to be covered with a whitish coating, readily wiped off, while there were only minimal accumulations of oil in the lowest recesses. The microscope showed that the oil was sterile but clogged with fibrin and polynuclear leucocytes gorged with particles of oil. Two loops of the peritoneal exudate were transferred to an agar plate culture of colon bacilli and it displayed a marked influence in inhibiting the growth of the bacilli.

147. **Acute Gonorrheal Polyarthritis.**—The case here reported shows that this affection may deceptively simulate acute articular rheumatism in its onset and course. Seven joints were affected from the first and the swelling and inflammation in the environment became constantly more pronounced. One joint developed a suppurative process. No trace or history of previous gonorrhea could be discovered; the patient was a young soldier, and differentiation was possible only by the high agglutinating power of the serum, 1 to 2,000, for the strain of gonococci cultivated from the patient's finger lesion. The case emphasizes the importance of bacteriologic as well as microscopic examination of suppuration occurring in the course of supposed articular rheumatism, especially when there is a possibility of claim for damages from occupational injury.

148. **The Side-Chain Theory to Date.**—Ehrlich and Sachs explain the side-chain theory by the light of their latest experimental and literary research, mostly in reply to the criticisms of Bang and Forssmann.

149. **Deplorable Influence on Medical Practice of Present Tendencies Among Manufacturing Chemists and Druggists.**—This article was the oration at the Polish congress for internal medicine held at Cracow last year. Jaworski goes over much the same ground as that traveled by the Council on Pharmacy and Chemistry and presents the matter in an impressive manner. He emphasizes particularly the great harm done by the manufacturers choosing names for their pharmaceutic preparations which proclaim their destined uses. No one except a physician, he says, would think of calling for phenolphthalein, for instance, when needing a purgative, but when it is labeled "purgen" and the advertisements of it face one on every hand, the sales run up. The only two drugs which actually deserve a name of this kind, he asserts, are quinin and mercury; they might appropriately be termed "antimalarin" and "antisyphilitin" if it were not for the fact that these drugs are useful in many other conditions than malaria and syphilis. He gives a long list of over a dozen different groups of proprietaries whose names suggest the disease for which the manufacturers claim they are specifics. Physicians feel, he adds, that they must prescribe the newest and latest proprietary to show that they are "up to date." He asks why the same unfavorable criticism should not be applied to those who are lauding to the skies these products of the manufacturing chemists as to physicians who practice unethical advertising methods. The manufacturers regard the advertising and lauding of their products in the medical press as an authoritative endorsement of their efficiency. But in reality physicians cannot rely on the quality, dosage or on the action of the proprietaries so extravagantly advertised, and they should throw all their influence against this pharmaceutical swindle, even if they know that by so doing they expose themselves to the danger of a damage suit brought by the manufacturers for thus injuring their business. Physicians, he declares, are allowing outsiders to step in and take out of their hands the weapons they need for the battle against disease and death, and manufacturers take and use these weapons merely for commercial purposes for their own selfish benefit. This evil of our day can be effectually combated by passive resistance and silence, but it has assumed such dimensions now that active measures are necessary at first. He then proposed a series of resolutions for the vote of the congress protesting against specifically descriptive names for proprietaries, insisting on the publication of the formula and chemical composition, and on the exclusion from the medical press of all substances advertised to the public, denouncing the prescribing of any proprietary whose formula is not published, and also denouncing the getting up of scientific articles or writing testimonials, by any physician, on any remedy whose composition is not known or whose composition may be known but its specific action is lauded in advance. Samples of such a remedy sent to the physician should not evoke a response. Druggists who compound such specific remedies or sell them should be regarded as pandering to quackery. Efforts should also be made to secure legislative restriction of the sale of alleged specific commercial remedies.

The congress voted affirmatively on these resolutions and also for the organization of state institutes for testing, controlling and publishing the results of investigation of all the new remedies. It was voted further that the code of ethics of the various medical organizations should be modified to conform to the above resolutions and that they should be brought up for discussion at the next international medical congress. Teachers in medical schools were also urged to call the attention of medical students to the evils complained of.

150. **Diabetes Insipidus.**—Schwenkenbecker describes a severe and typical case of what was supposed to be idiopathic diabetes insipidus but which turned out to be a polydipsia of psychic origin. He warns that this form should be suspected whenever the patients drink more than 10 liters of fluid a day, and drink soiled water, urine, etc., when drinking water is denied them. Another sign of this form is increased or perverted hunger and when the thirst can be quenched only by cool water.

151. **Influence of Charcoal on Cancer.**—Sticker relates a number of experiences in which rapidly growing round-celled sarcomas in dogs were completely checked in their further growth by application of charcoal. Mouse cancer was not affected to the same extent. The German cancer research central committee in 1902 started a collective inquiry in regard to the prevalence of cancer in coal miners, but the data are not sufficiently uniform for comparative study and Sticker urges further investigation in this line, noting separately the various kinds of coal and charcoal, the various kinds of cancer and the different modes of contact with the coal among the various workers.

154. **Thermopenetration.**—Nagelschmidt reviews the indications for this method of applying graduated heat to tissues at any given depth. It was mentioned in THE JOURNAL, Dec. 18, 1909, page 2139.

155. **Improved Means and Terms for Roentgen-Ray Dosage.**—Schwarz is in charge of the Roentgen institute connected with v. Noorden's clinic at Vienna, and he announces a new method of dosage for the α-rays as much more reliable and simpler than others in vogue. It is based on the fact that the Fowler-Eder fluid (a mixture of 2 parts concentrated solution of ammonium oxalate and 1 part of a concentrated solution of mercury bichlorid) is decomposed by the α-rays, with precipitation of calomel. He applies this by using a small capillary tube with a rubber top, something like a medicine dropper. The capillary filled with the fluid shows the effect of the rays by becoming turbid at one-third of the dosage which induces falling out of the hair on the scalp without inflammatory phenomena. He calls this dose a "kalom" (from *Kalomel*) and has no other gradation. When the fluid registers one kalom, that is, is beginning to become turbid, the fluid is ejected and fresh taken, repeating this until the required number of kaloms has been reached. There is no scale; limpid and turbid are the only grades.

Wiener klinische Wochenschrift, Vienna

December 16, XXII, No. 50, pp. 1737-1776

157 Mouse Cancer. (Mäusekarzinom.) H. Albrecht and V. Hecht.
158 Present Status of Trachoma Research. (Trachomforschung.) K. Lindner.

159 *Serotherapy of Typhoid and Influence on Agglutination Findings. (Beobachtungen bei der Serumbehandlung des Abdominaltyphus mit besonderer Berücksichtigung der Gruber-Widalschen Reaktion.) A. Herz.
160 Fibromas in Nasopharynx. (Ueber Nasenrachenfibrome.) H. Koschier.
161 Experimental Research on Phytotoxins and Agglutinins. (Zur Kenntnis der Immunantiphytalbumine.) H. Raubitschek.

159. Serotherapy of Typhoid and Its Influence on Agglutination.—Herz does not attempt to draw any decisive conclusions from his experience with serotherapy in twelve cases of typhoid but his impressions are favorable. He used the antitoxic serum prepared by Kraus' technic and calls attention to the increase in the agglutinating property of the patients' serum noticed regularly after injection of the curative serum. Nothing of the kind was observed in a corresponding number of controls. It seems possible, he says, that this increase in the agglutinating properties after injection of antityphoid serum, perhaps also of normal horse serum, may prove a differentiating sign available in the earliest stages of typhoid before the ordinary test elicits a positive response. There were no positive findings in any febrile infectious disease except typhoid.

Zentralblatt für Gynäkologie, Leipsic

December 18, XXXIII, No. 51, pp. 1729-1752

162 Cesarean Section by Incision in the Flank. (Der Flankenkaiserschnitt.) E. Solms.

Zentralblatt für Chirurgie, Leipsic

December 18, XXXVI, No. 51, pp. 1745-1776

163 Bloodless Correction of Traumatic Coxa Vara and Coxa Valga. (Die unblutige Redressement in der Behandlung der Coxa vara und valga traumatica.) Sprengel.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 12, XXX, No. 148, pp. 1561-1576

164 Formation of Accessory Foci in Typhoid and Connection with Agglutinating Power of Serum. (Considerazioni sul problema immunitario nel corso dell' infezione tifica.) C. Quadrone.

December 14, No. 149, pp. 1577-1584

165 Perforation of Gastric Ulcer Simulating Liver Colic. V. Balocchi.

Riforma Medica, Naples

December 13, XXV, No. 50, pp. 1373-1400

166 Kala-azar in Sicily. R. Feletti.
167 Insular Sclerosis in Girl of 3. (Caso di sclerosi a placche infantile.) S. Cannata.
168 Traumatic Separation of the Sutures in Infant's Skull. (Disgiunzione suturaria fronto-parietale traumatica del cranio infantile.) G. Diatti.

Hygiea, Stockholm

November, LXXI, No. 11, pp. 1137-1248

169 Syphilitic Stenosis of Trachea or Bronchus. (Om syfilitisk tracheobronchialstenos.) J. Tillgren.
170 Sympathetic Ophthalmia. (Två fall af sympatisk oftalmi med ovanlig etiologi.) A. Troell.

Ugeskrift for Læger, Copenhagen

November 25, LXXI, No. 47, pp. 1279-1312

171 *Germ Carriers and Prophylaxis of Transmissible Diseases. (Om Infektionsbærere.) T. Madsen.

December 2, No. 48, pp. 1313-1346

172 Diphtheria Epidemic Arrested by Preventive Injections of Antitoxin. Struckmann.
173 Removal of Adenoids and Enlarged Tonsils Effectual in Curing Certain Diphtheria Bacillus Carriers. (Om Uskadeliggørelse af Difterilnfektionsbærere.) H. Sygind.
174 Veronal in Delirium Tremens. A. Friedenreich.

171. Healthy Bacillus Carriers and Distributors.—Madsen gives an interesting historical sketch of what has been learned in regard to the persistence of typhoid, diphtheria and plague bacilli, meningococci and of cholera germs after recovery from the disease or in persons who have never had it. He relates a number of instances of epidemics from this source in the Scandinavian countries and then discusses what shall be done with these germ carriers. For the community, the ideal would be to isolate the infection carriers until the microbes can no longer be found in them, and this can be done with cholera and plague as the longest interval in which germs have been found was 94 days. But the persistence of germs in the other diseases renders this impossible. The only measures that can be taken are to have all persons with infectious diseases placed in isolation hospitals and detained there until they lose the germs. Especially after diphtheria, the Danish hospitals seek to retain the patients until three inoculations with two-day intervals show freedom from bacilli, which will be the case in a month in 80 per cent. After the month the patient is discharged on his demand, after careful instruction including the parents, as to the possible danger of infection in case of persisting bacilli. Especial pains are taken to learn whether the discharge of the patient will prove a danger only to the immediate family and small circle. In this case the patient is warned of the possible peril and taught how to render the dejecta harmless, to wash the hands after defecation and before preparation of food, and is warned of the peril in kissing, coughing, etc. This applies also to healthy bacillus carriers. A great and important task thus rests on physicians and hospitals; it requires much tact as it is necessary to impress the directions so forcibly as to ensure their being followed, while on the other hand avoiding frightening too much the persons involved. The affair assumes another aspect when the bacillus carrier is liable to contaminate a larger circle, as for instance in the case of a teacher, a nurse, a cook, or employees in dairies, bakeries, etc. In these cases the community has a right to insist on abstention from these occupations until free from the germs. The hospitals must also watch over their subordinate personnel that they do not spread infection; some of them must be germ carriers. Chronic bacillus carriers should be carefully trained in precautionary measures and cleanliness, and he quotes from the German regulations which keep careful record of all known typhoid bacillus carriers, with efforts to warn them away from occupations liable to contaminate large numbers. This police oversight is scarcely possible to the same extent elsewhere, but the district physicians should keep bacillus carriers in view and physicians should endeavor to find out the bacillus distributors who are responsible in many cases for infection. Systematic search for the source of infection in every case and discovery of germ carriers will certainly prove an important aid in the prophylaxis of infectious diseases. The idea that the healthy germ carrier question is beyond practical solution is unworthy of a physician, and it will soon have to be discarded both by the community and the medical profession. In Germany, after the bacillus carriers had been sought and trained, the number of infections from this source dropped to a fifth of what it had been before, showing that such efforts are not fruitless.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

SPONDYLOTHERAPY: Spinal Concussion and the Application of Other Methods to the Spine in the Treatment of Disease. By Albert Abrams, M.D., Consulting Physician to the Mount Zion and French Hospitals, San Francisco. Cloth. Pp. 420, with 100 illustrations. Price, $3.50. San Francisco: The Philopolis Press, 1909.

MEDIZINISCHES TASCHENLEXIKON IN 8 SPRACHEN (deutsch, englisch, französisch, italienisch, japanisch, russisch, spanisch, ungarisch). Bearbeitet und herausgegeben von Dr. J. Meyer, Arzt in Berlin. Flexible leather. Pp. 788. Price, 16 marks 61 pfennige. Berlin: Urban and Schwarzenberg, N. Friedrichstrasse 105b, 1909.

LA CURE RADICALE DE LA HERNIE INGUINALE: Leçons professées à l'Hôtel-Dieu. Par le Docteur Lucas-Championnière, Chirurgien Honoraire de L'Hôtel-Dieu, Membre de l'Académie de Médecine. Paper. Pp. 192, with 53 illustrations. Price, 3.50 francs. Paris: G. Steinheil, Editeur, 2 Rue Casimir-Delavigne, 1909.

FUNDAMENTALS AND REQUIREMENTS OF HEALTH AND DISEASE. By Thomas Powell, M.D., Member of the American Public Health Association. Half Morocco. Pp. 602, with illustrations. Price, $5. Los Angeles, Cal.: Powell Publishing Company, [1909].

SMALLPOX AND VACCINATION IN BRITISH INDIA. By S. P. James, M.D., London, D.P.H., Major, Indian Medical Service. Cloth. Pp. 105, with 14 diagrams. Price, 7 shillings 6 pence. London: W. Thacker & Co., 2 Creed Lane, 1909.

FOURTH ANNUAL REPORT OF THE NATIONAL FIRST AID ASSOCIATION OF AMERICA. [Executive Office, 6 Beacon Street, Boston.] Incorporated under the Laws of the District of Columbia. Paper. Pp. 38. Boston, 1909.

THIRTEENTH ANNUAL REPORT OF THE LOOMIS SANATORIUM FOR THE TREATMENT OF TUBERCULOSIS. For year ending Oct. 31, 1909. Paper. Pp. 77, with illustrations. Liberty, Sullivan County, New York.

ANNUAL REPORT OF THE ASYLUM FOR CHRONIC INSANE Milwaukee County. For the year ending Sept. 30, 1909. Paper. Pp. 51, with illustrations. Milwaukee.

VITAL ECONOMY. By John H. Clarke, M.D. Cloth. Pp. 119. Price, 50 cents net. New York: A. Wessels, Newold Publishing Co., 1909.